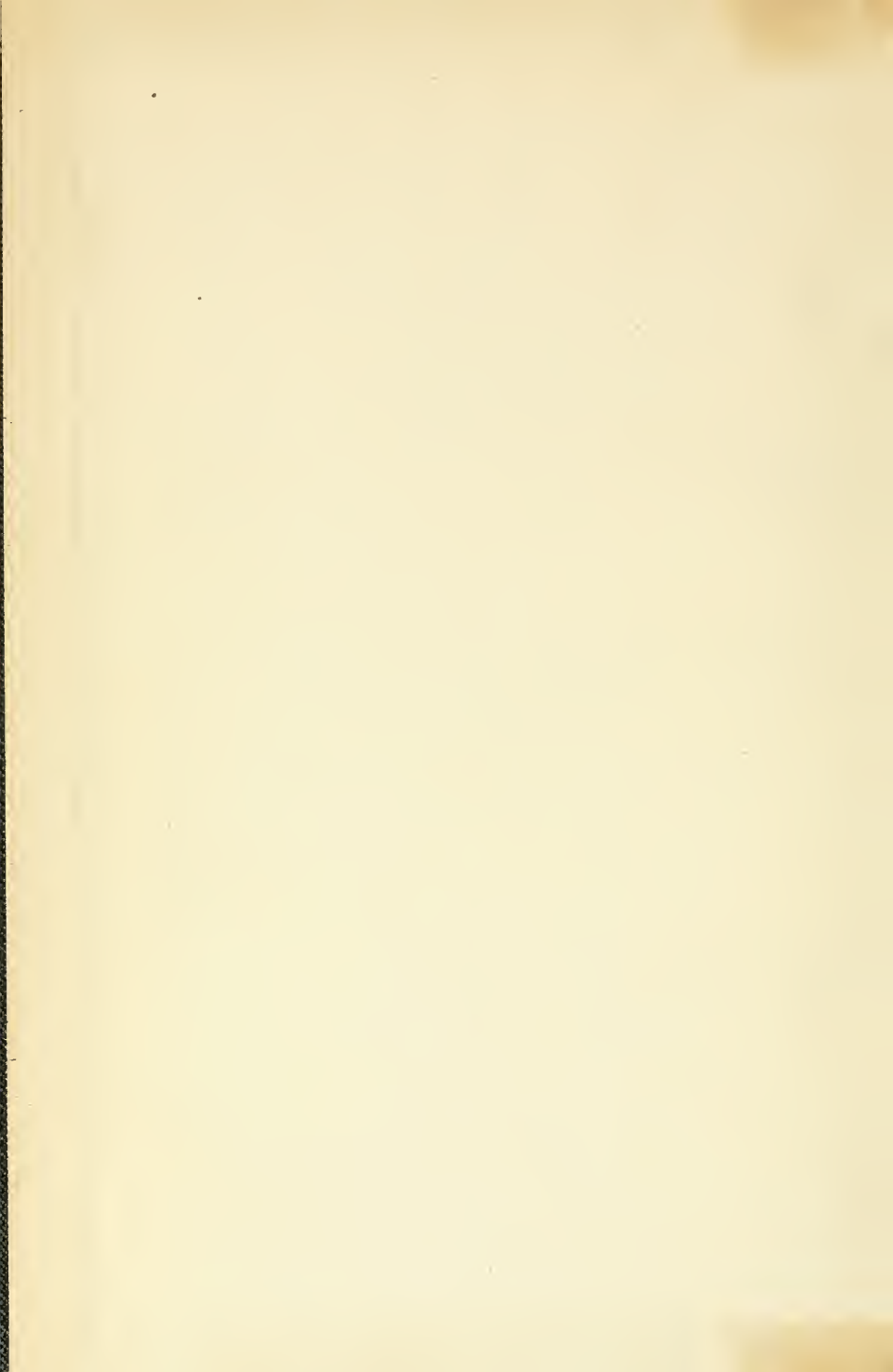
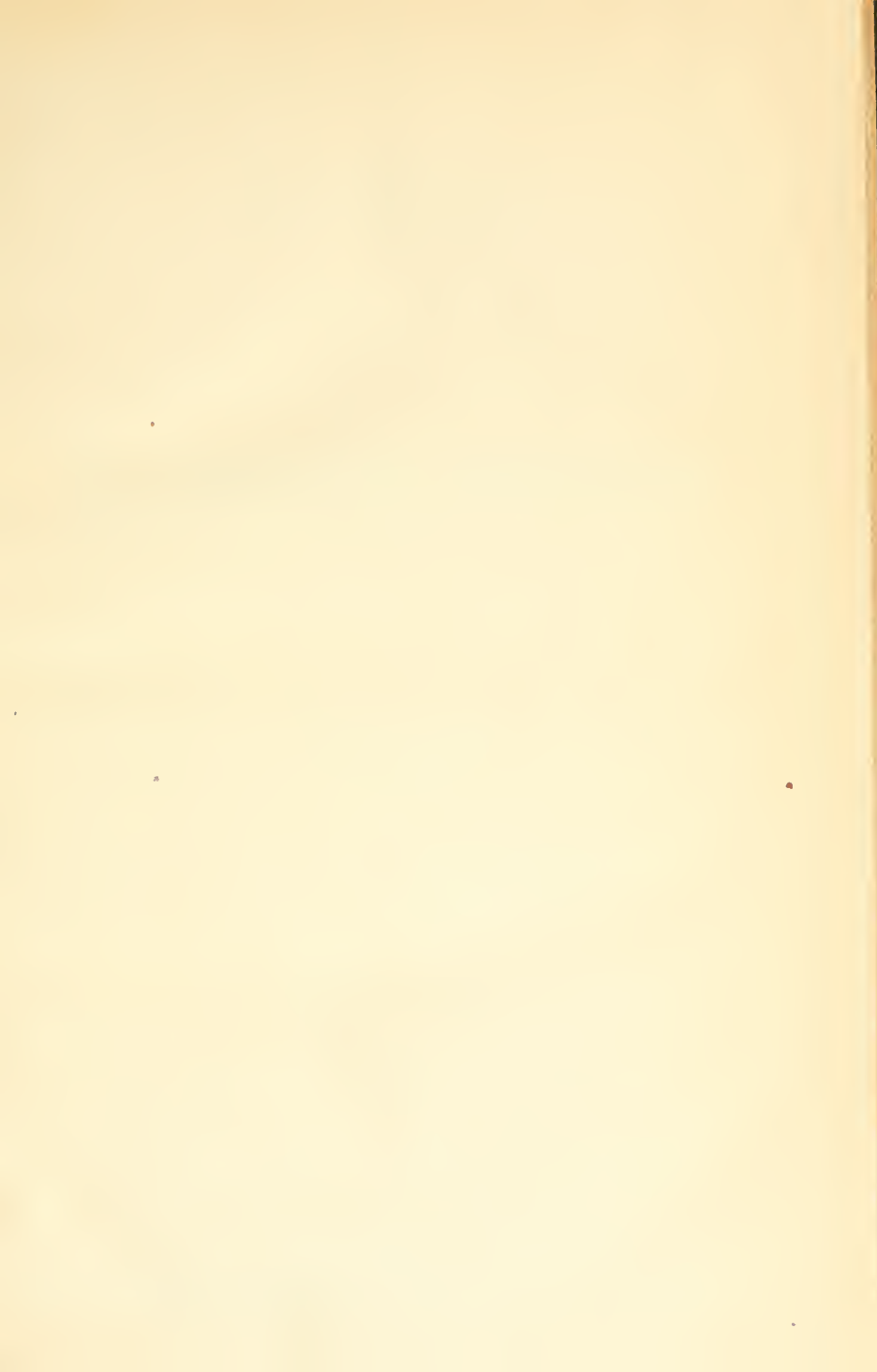
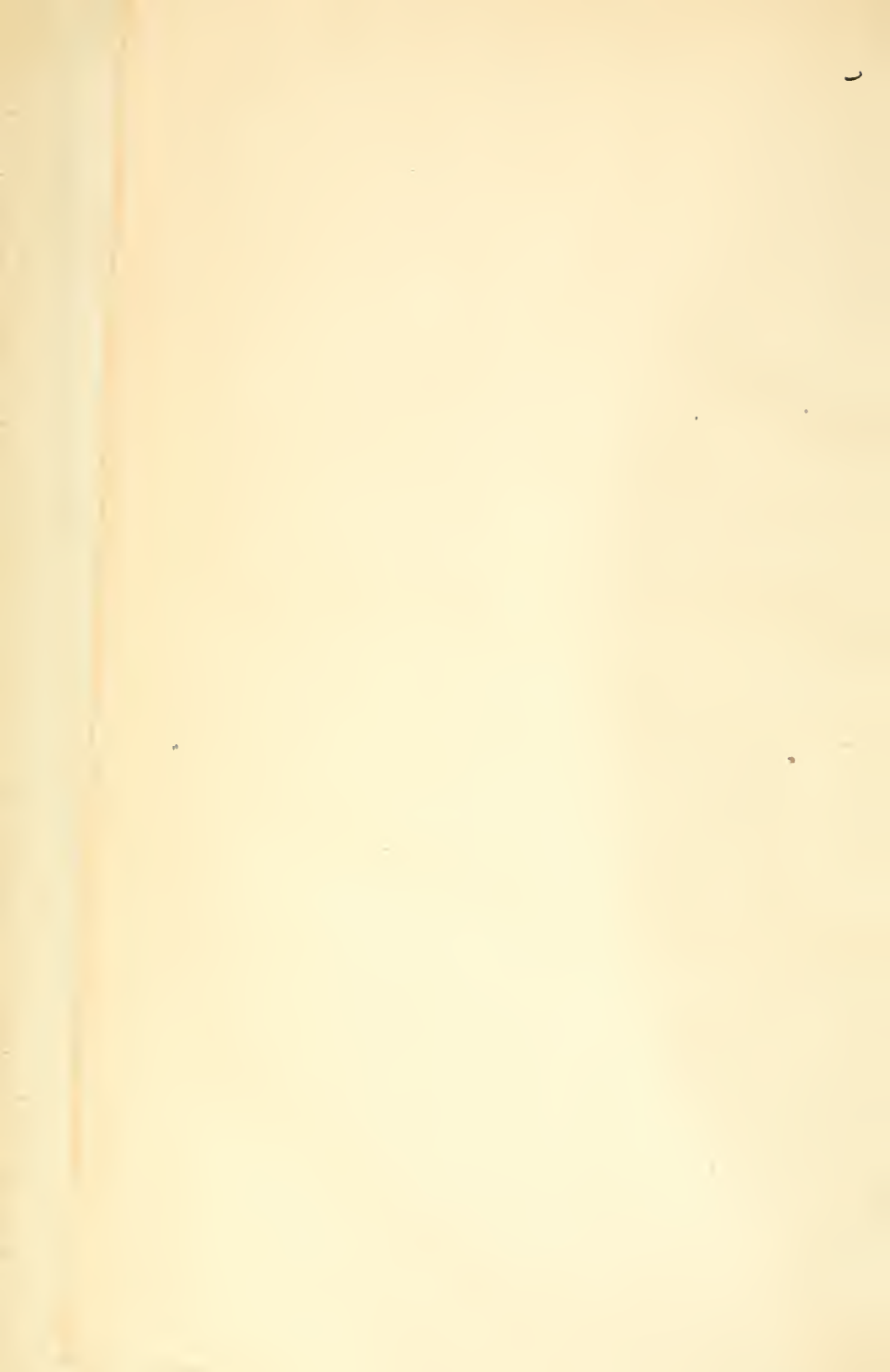


UNIV. OF
TORONTO
LIBRARY







~~D~~
~~Pol Sci~~
~~R~~

JOURNAL *Let. to (Parker)*

OF THE

72
STATISTICAL SOCIETY

OF

LONDON.

VOL. VIII.

LONDON:

JOHN WILLIAM PARKER, 445, WEST STRAND.

1845.

HA
1
R65
v.8

NOTICE.

THE Council of the Statistical Society of London wish it to be understood, that, while they consider it their duty to adopt every means within their power to test the facts inserted in this Journal, they do not hold themselves responsible for their accuracy, which must rest upon the authority of the several Contributors.

82/6

CONTENTS.

	Page
Criminal Statistics and Movement of the Bond Population of Norfolk Island, to December, 1843. By Captain Maconochie, R.N., late Superintendent.....	1
On the Population and Mortality of Calcutta. By Lieut.-Colonel W. H. Sykes, F.R.S.	50
Statistics of the Hospitals for the Insane, under the Bengal Presidency. By Lieut.-Colonel W. H. Sykes, F.R.S.....	58
On the Sanatory Condition of the City of York. By T. Laycock, M.D., Physician to the York Dispensary	63
Statistics of Old and New Malton. By William Charles Copperthwaite, F.S.S., Borough Bailiff of Malton	66
On the Duration of Life among the Families of the Peerage and Baronetage of the United Kingdom. By W. A. Guy, M.B., Cantab., Fellow of the Royal College of Physicians, Professor of Forensic Medicine in the King's College, Physician to the King's College Hospital, Honorary Secretary of the Statistical Society, &c.....	69
Comparison of the Sickness, Mortality, and prevailing Diseases among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports. By T. Graham Balfour, M.D., Assistant-Surgeon Grenadier Guards, &c. (Communicated by Lieut.-Colonel Tullock, F.S.S., &c., &c., and read before the Statistical Society of London 18th November, 1844)	77
Proceedings of the Statistical Society	86
Miscellaneous	87
Eleventh Annual Report of the Council of the Statistical Society of London. Session 1844—45	97
Fourteenth Meeting of the British Association for the Advancement of Science, held at York, October, 1844	102
Statistics of the Educational Institutions of the East India Company in India. By Lieut.-Colonel W. H. Sykes, F.R.S.	103
Historical and Statistical Account of the present System of supplying the Metropolis with Water. By Joseph Fletcher, Esq., Barrister at Law, Honorary Secretary.....	148
Proceedings of the Statistical Society	182
Miscellaneous	182
Statistical Data for forming Troops, and maintaining them in Health in different Climates and Localities. By Assistant-Surgeon Edward Balfour, Madras Army	193

	Page
Remarks on Tables of Marriage in the Irish Census Returns for 1841. By Thomas A. Larcom, Esq.	209
Reply to the preceding Remarks. By Henry Hallam, Esq., F.R.S.	214
Adaptation of Official Returns of Railway Traffic to the general purposes of Statistical Inquiry. By W. A. Graham, Esq., F.S.S.	215
Statistics of the Educational Institutions of the East India Company in India. By Lieut.-Colonel W. H. Sykes, F.R.S.—(Continued from page 147)	236
Hints for improving the Condition of Agricultural Labourers. By the Rev. Theodore Dury, Rector of Westmill, Herts	273
On the Financial Economy of Savings' Banks. By J. W. Woollgar, Esq.	275
Tables of Accidents brought to the Stockport Infirmary, and attended by the House Surgeon, in the years 1833, 1834, and 1835. By Samuel Gaskell, Esq., formerly House Surgeon to the Institution	277
Miscellaneous	281
Fifteenth Meeting of the British Association for the Advancement of Science, at Cambridge, June 18th—25th, 1845. Proceedings of the Statistical Section	289
Contributions to Vital Statistics, especially designed to elucidate the Rate of Mortality, the Laws of Sickness, and the Influences of Trade and Locality on Health, derived from an extensive Collection of Original Data, supplied by Friendly Societies, and proving their too frequent Instability. By F. G. P. Neison, Esq., F.S.S., F.L.S., Actuary to the Medical, Invalid, and General Life Office	290
Adaptation of Official Returns of Railway Traffic for Statistical Inquiry	344
On the Causes which determine the Choice of an Employment; being an Addition to the Essays on the Influence of Employments upon Health. By William Augustus Guy, M.B., Cantab., &c., &c.	351
Incendiarism	353
Education among Criminals	351
Proceedings of the Statistical Society	354
Comparative Tables of Degrees at Cambridge, in the Seventeenth and Nineteenth Centuries. By James Haywood, Esq., F.R.S.	355
Currency Returns	358
Memoranda towards the Agricultural Statistics of Norfolk. By Sir John P. Boileau, Bart., F.R.S.	360
Miscellaneous	361

QUARTERLY JOURNAL

OF THE

STATISTICAL SOCIETY OF LONDON.

MARCH, 1845.

Criminal Statistics and Movement of the Bond Population of Norfolk Island, to December, 1843. By CAPTAIN MACONCHIE, R.N., late Superintendent.

To give a general view of the circumstances and character of the bond population of Norfolk Island, I shall, in the following pages, bring together a number of returns and other statements illustrating the past and present condition of the island, and placing this in as many points of view as may appear in any way advantageous. I shall class these on the present occasion under the following two heads:—1. Those exhibiting the nature and capabilities of the island itself; 2. Those showing the movement of bond population on it since it became a penal settlement.

1. The group of which Norfolk Island is the principal, is situate in lat. $29^{\circ} 2'$ S., and $168^{\circ} 2'$ E. long., 900 miles E.N.E. of Sydney, and 1350 N.E. from Cape Pillar, in Van Dieman's Land. It is composed of two principal islets, Norfolk and Philip Islands, distant about six miles from each other, with about a dozen others, Nepean and Bird Islands, which are little more than dry rocks, distributed around the main island.

Norfolk Island is not quite five miles long, with a medium breadth of about two and a half; and its superficies is said to be 8960 acres, and greatest height, at two points close together, forming the double summit of Mount Pitt, 1050 feet. These two last numbers are the result of a rough survey made, with very defective instruments, about four years ago, by Lieutenant Lugard, R.E., and are below previous estimates; and, as I think, also somewhat below the truth; but I say this last only from surmise, and may be mistaken.

Philip Island is about a mile and quarter long, with a medium breadth not exceeding three quarters. Its height has not been ascertained, but is probably from 200 to 300 feet less than that of Norfolk Island. It is everywhere precipitous; and its sides being furrowed into deep channels or gullies, heavily wooded, though the timber is small and of little value, it does not appear susceptible of occupation to economical advantage. As a punishment station, however, from the principal settlement, or as an invalid station, where the infirm, who are frequently also ill-conducted, could be kept apart from the able and effective men, I think it might be occupied with very considerable benefit to discipline. Garden

ground could be easily procured on it, and water has been found at one known spot, and probably could be obtained also elsewhere.

Both these islands are blocks of porphyry, much decomposed on the surface, and thus presenting in many places, where water-furrowed, the appearance of basalt; but nothing of the kind is found, in either, in mass, though, in both, boulders of compact greenstone are extensively distributed, which, when broken by gunpowder, form an excellent material for building. Their number on Norfolk Island is even prodigious: they pave nearly all the water-courses; and in many of the higher grounds also they lie so close together that the fields in which they are found might be worked as continuous quarries. They appear to have been originally embedded in the porphyry, and wherever that is deeply cut into, almost to whatever depth, as in well-sinking or otherwise, they are constantly found more or less thickly scattered, but always round, as though water-worn. On the high grounds their surface is generally much weathered and hollowed into cups.

Besides these and the porphyry, extensive beds of sand and limestone are superposed near the south-east extremity of Norfolk Island, where the settlement is placed, and afford further almost inexhaustible supplies of building material. Both are of inconsiderable depth, but their extent is such as to preclude all reasonable chance of working them out. Of the two, the limestone appears the older formation. It covers above 20 acres of the comparatively flat land which forms the south-east extremity, and its medium depth appears to be from 12 to 20 feet. At some remote period it has been violently upheaved, particularly in two places—the small hill on which Government House stands, which rises somewhat abruptly about 50 feet above the adjoining level, and at the cliffs skirting the sea-shore, which rise equally suddenly a few feet lower. From these two points the stone dips in all directions, and with all degrees of depression, from 10° to 90° . In many places it stands thus perpendicular, and in most it is very confused. Slabs, chimney-shafts, or other regular blocks are thus only procured at particular spots. The stone is very open and porous, insomuch that its specific gravity is only 1.135. It is cast in very thin *laminæ*, not above 1 to 3 inches thick, and is of fine quality, with a slight admixture of sand, but yielding in the kiln fully 90 per cent. of fine lime. Below it, is everywhere found the island porphyry. The sandstone appears to have formed against, and in some places under it, subsequent to its being thrown up. The bar and projecting rocks along the whole south-east front are composed of this; but it is nowhere above 6 feet thick. Below it, is found an unctuous-looking black clay, full of vegetable remains, especially the leaves and seeds of pines and other island trees. The black colour probably proceeds from the decomposition of these, the basis being the island porphyry; but it is remarkable that it is nowhere found like this excepting under the sandstone; everywhere else, below the loose sand and boulders which form the beaches elsewhere, it is without vegetable remains, and of the same light-brown colour with the cliffs. The sandstone is not stratified at all, but may be cut with wedges in any direction and of any size. It is most compact where under the action of the salt water, below high-water mark; above this it is much more open and shaky, and it is soon lost in ascending from the beach, either running into the sands on the downs or abutting against the limestone. It is a

very porous stone, a drip-stone; for which latter purpose it is much used, as well as for building. Being quarried from under salt water, it draws damp on every change of weather, and is thus best fitted for outside work. Both these building stones, indeed, being thus porous, the buildings on the settlement are rough-cast with lime, which requires renewing every second or third year: without this they would be scarcely habitable. The supply of the sandstone, like that of the limestone, appears inexhaustible; and, in fact, it is renewing from year to year. In the direction where it lies, wherever sand is deposited, and continues at rest, but is yet washed from time to time by the sea, it speedily consolidates; and the stone may be thus seen along the beach in every stage, from the particles scarcely cohering to the compact mass. This process exists elsewhere, but I think is nowhere so rapid as here. The shell-fish are caught by it, being frequently found imbedded; and the boulder-stones along the beach are all more or less crusted. The beach on which it occurs is open to the prevailing south-east winds; it is thus almost incessantly beaten by a heavy surf; and it seems probable that besides any cementing power or body that may exist in the salt water, or be washed off by it from the adjoining limestone cliffs, a gluten is cast up from the black clay beneath. The presence of the sandstone solely where it occurs seems to indicate such a connexion, though it is true also that there is only sandstone near the limestone.

Directly opposite the fields thus described, and not more than 600 yards from the beach formed by them, Nepean Island rises to the height of about 50 feet, and is composed of the same, or even a purer, limestone, with also its beach of sandstone along its south-east and east fronts. It is about a quarter of a mile, or something less, long; of a horse-shoe form, open to the east; and its centre, above the action of the waves, is a bed of loose sand: water has not been found on it, and vegetation has within the last few years almost disappeared, owing, as it is said, to a colony of rabbits which destroyed everything edible. Only birds are now found on it, chiefly gannets and mutton-birds; and the only economical use that it is put to is obtaining from it from time to time stones for building the shafts of chimneys. For this purpose, its limestone, which may almost be cut into shape, is remarkably well adapted; and a few quarrymen will in a week supply more than the boats can bring across in even a dozen trips. The sandstone here has no peculiarity that I am aware of: it seems in all respects identical with that on the main island.

An old prisoner, aged 80, now on the island as a second convicted man, asserts that he was an assigned servant on it from 1793 to 1797, and that the distance between Norfolk and Nepean Island at the beginning of that period did not exceed a boat's length. In 1797 two severe shocks of earthquake were, however, experienced; by the second of which the near point of Nepean Island was submerged, and the channel made as we now see it. He supports this statement by some collateral assertions known otherwise to be true, as the existence of a fishery on Nepean Island at that time, with which the intercourse was habitual, but which now would be very difficult; and it is remarkable that the rocks which almost pave the channel between Norfolk and Philip Islands, much beyond the line of Nepean Island, are nearly all limestone, whereas elsewhere round the island they are porphyry, as though at a remote

period there had been a much greater submersion of the former than is thus within recollection. But though slighter shocks of earthquake have been felt since the occupation of the island as a penal station—and one in 1834 even caused considerable alarm and inconvenience by raising the tide so high that it became necessary to release the men both from the gaol and barracks in the middle of the night—no change of coast line has within this time occurred; nor, so far as I can see or judge, is there any other sign of recent volcanic action on the island than is here afforded.

Neither sand nor lime stone are found elsewhere in the group. The Bird Islands are mere nodules of porphyry distributed along the north shore, and exactly resembling the cliffs opposite to them. In an economical sense, they are utterly valueless; but they are also tenanted extensively by birds, particularly the gannet, boatswain-bird, and sea-swallow, the two latter of which are seldom seen on the other side of the island. The tides run with great rapidity among these Bird Islands, and thus, though but a few yards from the shore, it is unsafe to swim off to them, and several lives have been lost at different times through the men's eagerness to obtain birds, or to fish from them. Both they and the cliffs opposite to them are extensively hollowed into caves and recesses by the action of the water, and in some cases also by human agency. The porphyry, not too hard to dig, yet too tenacious readily to fall in, is easily formed into a cave, and almost all the men who take the bush on the island form some such retreat, where it is sometimes very difficult to find them. Some of the mutineers who in 1826 seized the boats and escaped to Philip Island thus lived 13 months there before they were retaken; and many stories are current, most of them probably exaggerated, of the extent of cave formed under its principal peak.

With the exception of the plane already described, on which the settlement is built, the sea-front of Norfolk Island is everywhere high and precipitous. Even the gullies, which cut it as they issue to the sea, do not dip quite to the water level, but terminate in abrupt declivities of from 30 to 50 feet high, over which in winter fall many highly picturesque cascades. The landing-place on the north side takes its name from this circumstance; it is close to Great Cascade, as distinguished from others, which in like manner have each their local name. The intervening cliffs are from 200 to 250 feet high all round. The surface of the interior is extremely uneven, being deeply cut by the gullies adverted to, which radiate from Mount Pitt in all directions, many of them being also connected with each other by lateral gullies. The average height of the land between them, or what may be called the table land of the island, is 300 to 350 feet. At the highest point between Cascade and the settlement, where the east and west and north and south roads intersect, and which, with the exception of a small patch on the side of Mount Pitt 40 feet higher, is also the highest land cultivated, it is 477 feet. Spring water of excellent quality may be obtained everywhere along this tract, within 100 feet of the surface. The well at the cross roads is 97 feet deep, and in our driest weather has not fallen below 5 feet of water. The wells at Cascade Camp are 320 feet above the sea, and still more abundant. They are all fed by threads of water penetrating the upper surface, not by ground springs. No considerable head of water has

been anywhere found; and the rills which in winter run in every gully, nearly all become dry in summer, to the great injury and inconvenience of the cattle at this season.

Of this form, then, the cultivation of Norfolk Island is necessarily laborious; and although nothing can exceed the vigour, the even troublesome vigour, of vegetation on it, or the consequent beauty of its scenery, the returns from its sown crops are uncertain. The following table will show those actually reaped within the last 12 years:—

Years.	Maize.			Wheat.			Rye.			Barley.			Oats.		
	Acres.	Total Produce.		Acres.	Total Produce.		Acres.	Total Produce.		Acres.	Total Produce.		Acres.	Total Produce.	
		Bushels	Average per Acre.		Bushels	Average per Acre.		Bushels	Average per Acre.		Bushels	Average per Acre.		Bushels	Average per Acre.
1832	226	2,839	12½	100	396	3½	No record.	No record.	No record.	No record.	No record.	No record.	No record.	No record.	No record.
1833	140	2,951	21	32	496	15½	No record.	No record.	No record.	No record.	No record.	No record.	No record.	No record.	No record.
1834	275	8,927	14½	97	1,053	10½	No record.	No record.	No record.	No record.	No record.	No record.	No record.	No record.	No record.
1835	398	4,630	11½	130	1,550	12½	No record.	No record.	No record.	No record.	No record.	No record.	No record.	No record.	No record.
1836	356	15,914	44½	141	4,495	31½	6	194	32½	No record.	No record.	No record.	No record.	No record.	No record.
1837	596	20,935	41½	200	398	7½	10	284	28½	2	No record.	No record.	No record.	No record.	No record.
1838	735	21,245	29½	231	2,235	9½	21	500	23½	24	764	31½	No record.	No record.	No record.
1839	818	26,882	32½	206	1,487	7½	43	244	5½	79	1,435	18½	No record.	No record.	No record.
1840	805	27,078	33½	237	3,442	14½	14	84	6	50	900	18	15	354	23½
1841	815	21,516	26½	275	1,400	5½	8	91	11½	59	1,005	17	31	994	32
1842	617	7,625	12½	303	2,424	8	7	183	26½	28	283	10½	24	960	40
1843	615	8,379	13½	34	544	16	56	1,456	26	56	1,685	30	25	750	30

The highest of these returns is below a moderate average in New South Wales, and the majority would be there considered absolute failures. The causes, I apprehend, to be these:—1. The surface soil is a rich, sharp, very fine mould, with scarcely a pebble in it, calculated to start anything, but not sufficiently heavy to carry the vegetation it thus produces to maturity unless in very favourable circumstances. The crops on it are thus liable in the open ground to be injured by the high winds, which disturb the roots, and in the gullies to run to straw. I have never seen them anywhere realize their early promise. 2. This character of the soil is much increased by the long almost exclusive use of the hoe in the agriculture of the island, which disturbs the land too much. 3. It is further increased by the too greedy system of cropping that has been pursued, maize on maize, or wheat and maize alternately, for years. 4. The colonial practice constantly pursued on the island of burning off stubble, instead of digging or ploughing it in, is further against the land. And 5. The difficulty of communicating across the gullies, with the short time that the effects of manure remain in land thus characterized, and perhaps the indifference to rule evinced in all colonial farming, especially where not stimulated by private interest, have prevented the counteraction of these causes by artificial means. The remedy, accordingly, is such counteraction, viz.:—1. The ground that has been longest in culture, and which happens to be also the most exposed to the prevailing winds, should be laid down in grass and suffered to rest. 2. New ground should be taken in, instead of this, in the central and northern part of the island, lying from the prevailing winds. (I have myself cleared above 500 acres in this direction with this view.) 3. The plough should be used on the upland and exposed grounds; the effect of the hoe is on them peculiarly injurious. And 4. A regular rotation

of cropping, with occasional manure, should be adopted. By these means I think that the returns could be made more *uniform* and *certain*, but I doubt if they could by any means be raised above a low general average, as compared with New South Wales. The soil is so light, the declivities so steep, the sub-soil (degraded porphyry, almost everywhere within two feet of the surface of the consistence of stiff clay, with a strong acid salt in it, which, on exposure, evaporates and leaves the residuum little better than dust,) is so hot in its character and so favourable to the escape of water, that I do not think any care can do more than palliate these several inconveniences. It is remarkable that even in the gardens on the island, with every advantage of cultivation, the vegetables scarcely ever carry their seed to perfection, however otherwise excellent. They grow vigorously to root and herbage, but excepting maize, nothing can be said to corn well. All seeds must be frequently renewed.

Stock of all kinds thrive well on the island; nothing can surpass the mutton, pork, and poultry reared on it. The beef is not so good, but undoubtedly it might be made so. At present it is slaughtered from labour or grass, as it may happen; and no artificial food being provided for the cattle, they are alternately gorged or pinched according to the season. In the long droughts with which the island is almost annually visited, but especially within the last three years, they usually suffer much, far more than the sheep. In 1842 we had considerable difficulty in even carrying them through at all, and were forced on the different runs to fell trees for their support. At this time a woodman's axe in their neighbourhood brought them round in hundreds.

The annexed table will show the quantity of stock on the island belonging to Government at the end of 1843. Besides what is thus shown, pigs are in all the officer's stock-yards, and at most of the bush stations. They are an extremely profitable stock, but should be slightly salted before being used extensively as food, fresh pork being considered to promote the dysenteric tendency otherwise on the island. No private individual is allowed to keep cows or sheep, and only two have private horses, one each. I think that the present flock of sheep is as large as should be kept, but that the cattle, with care to provide part artificial food for a portion, as the dairy, working, and a small fattening herd, might be increased to 1000 head. It would be out of place to give here my reasons for fixing on this number. I do not think it could be enlarged without great risk of occasional loss, or that it could be even carried thus far without much care. In the droughts, the cattle not unfrequently even fall over the cliffs, stretching after a blade of grass beyond their reach:—

Horses.	Horned Cattle.	Sheep.	Swine.
Stallions . . . 1	Bulls . . . 4	Rams . . . 48	Boars . . . 9
Young ditto . . 1	Young ditto . . 6	Feeding wethers 786	Young ditto . . 1
Gelding, broken in. 9	Feeding oxen . . 5	Young ditto . . 514	Feeding barrows . 25
Colts . . . 1	Working ditto . 127	Male lambs . . 839	Young ditto . . 210
Fillies . . . 2	Steers . . . 95	Breeding ewes 1902	Breeding sows . . 64
Mares . . . 5	Cows . . . 182	Maiden ditto . 473	Maiden sows . . 39
Yearlings and under 3	Heifers . . . 112	Female lambs . 790	Young sows . . 66
	Yearlings and under 146		
Totals . . . 22	677	5352	405

The economical resources of the island may be thus, I think, summed up. In the direction that I have indicated, from 1000 to 1200 acres may

be brought into cultivation, and, with care, be kept in better heart than the present farm for any time. On two-thirds of this ground, from 20 to 30 bushels per acre of maize, rye, or barley, may confidently be reckoned on, and, with very good management, the return may even somewhat exceed this; but wheat and oats will not answer so well, being always of very inferior quality. The others are available whether as rations or for the use of stock, and three crops of them at the above rate may be obtained in two years,—the maize being a summer crop, rye and barley winter ones; and by changing the ground, and sowing the different crops late and early, this return is easily effected. The remaining third of arable ground should be kept in reserve for vegetables, pasture, and other local purposes, contributing at the same time to the maintenance of stock and of a suitable agricultural rotation, and should thus not be looked to in each year as likely to turn produce into store. (It is the want of such a reserve that in past years has both injured the land and the stock, and it is my anxiety to introduce it that has appeared to lessen recently in our returns the amount of land under cultivation.) The average weight of sheep slaughtered on the island is 55 lbs., and of bullocks 600 lbs. The sheep yield a fifth of their entire number to the knife annually, and yet are rather increasing in number. The cattle, once established in sufficient numbers to kill from regularly without regarding increase, will yield about a sixth; that is to say, by not slaughtering under five years of age in any case, drafting off the old as younger and better come forward to supply their places, and making a large allowance for casualties, which will always be numerous on the island, the violent changes of quantity and quality of food, caused by the violent changes of season, being peculiarly injurious, and often extensively fatal, to the young calves. Breeding swine, kept in the best manner, will rear easily three litters of six in two years, or nine pigs annually, averaging within the year 120 lbs. each, or from 1200 lbs. to 1400 lbs. annually in all; and each sow, with its young, where a number are kept together, will within the same time consume the produce of an acre and third of ground, for which, accordingly, the above is the return. But good management is indispensable throughout. No stock depend so entirely on artificial keep as swine, or are so much injured, consequently, by undue economy, slovenliness, or neglect.

The shores of Norfolk Island abound with fish, many of considerable size, and of good quality, and are found both in shoals and single fish. Of the former the principal are king-fish, averaging from 30 to 70 lbs.; trevally, from 5 to 25 lbs.; salmon, from 1 to 10 lbs.; grouper and skip-jacks, from 1 to 5 or 6 lbs.; and mackerel, not very abundant, yet not unfrequently caught, in all respects resembling the English, and as good. Of the single fish, there are two specimens of cod, black and brown, (the first often rising above 100 lbs. weight); trumpeter 8 to 14 lbs., and many others smaller. Were there a boat harbour, which boats could leave and enter in all weathers, with a free boat's crew, or other arrangements made by which they could be reasonably secured from seizure by the prisoners with a view to escape, I have little doubt that a considerable addition would be gained to the economical resources of the island from fishing. The banks round the island extend above 20 miles from it in all directions, and fish are caught over nearly the whole extent.

One of the greatest defects of Norfolk Island is, indeed, its want of a harbour, and the consequent delay and difficulty in maintaining its sea communications. From 15 to 30, and even 40 days, are common periods of detention, when in ordinary circumstances from 4 to 6 days would be a fair average; and all beyond this may be considered as representing so much labour, anxiety, and expense thrown away. Nothing can be more vexatious; nor does it admit of a complete remedy, though it would be much palliated by adding Ball's Bay, on the east side of the island, to the other landing-places on it, cutting a road to this either over the hill from the Settlement, or, which I think much preferable, round under the cliffs, along the sea-shore, and laying down heavy moorings on a clean sand-bank, just outside the bay. This work I accordingly strongly recommend.

The following is a list of the principal woods of the island, with their economical uses. For these, the supply of them is ample for many years, with the exception, perhaps, of the cherry-tree, which cannot stand long the demand made on its bark for tanning, and wood for charcoal; and the hopwood, which is already become rare. As the cherry-tree is a peculiarly valuable wood, being the toughest and best adapted for making agricultural implements on any of the island, some protection is urgently required for it. The other is unimportant.

Description of Trees found on Norfolk Island, and the Purposes to which they are applied.

No.	Botanical Name.	Local Name.	Purpose for which required.	Diameter.
1	Araucaria Excelsa .	Pine wood . . .	In general use for building purposes	1 ft. to 5 ft.
2	Elæodendrum Australe	Cherry Tree . . .	— for agricultural implements	1 ft. to 2 ft. (a)
3	Notelæa Longifolia .	Iron wood . . .	— for mill-cogs & spokes of wheels	1 ft. to 2 ft.
4	(Unknown)	Maple Tree . . .	— for knees and timbers for boats	1 ft. to 18 in.
5	Blackburnia Pinnata	Yellow wood, hard	— for bedsteads and other furniture	1 ft. to 2 ft.
6	Coprosma Villosa .	—, soft	Ditto	1 ft. to 2 ft.
7	Mimusops Laurina .	Teak wood . . .	Sometimes used for fencing and boat-planking	1 ft. to 18 in. (b)
8	Dodonæa Australis .	Hop wood . . .	In general use for turning work	4 in. to 6 in.
9	. . . . .	Black wood . . .	— by thatchers for spiles	4 in. to 6 in.
10	Croton Sanguifluum.	Blood wood . . .	— for tool handles	8 in. to 1 ft. (c)
11	. . . . .	Guava Tree . . .	Of no service but for its fruit	4 in. to 6 in.
12	Citrus	Lemon Tree . . .	Ditto	2 in. to 5 in.
13	Myrsine crassifolia .	{ Bastard Blood wood { Honeysuckle . . .	In general use for knees and timbers of whaleboats	6 in. to 10 in.
14	Daphne Indica . . .	Currajong	— for firewood	6 in. to 10 in. (d)
15	Hibiscus Pattersonii .	White Oak	— for ditto	1 ft. to 2 ft. (e)
16	. . . . .	Turpentine wood .	Has been used for boats' knees	8 in. to 10 in. (f)
17	Alsophila Excelsa .	Fern Tree	In use for stringing in cabinet work . . . . .	. . .
18	Tetranthera	White wood . . .	A fine looking wood, but does not last	1 ft. to 3 ft. (g)
19	Freycinetia Baueriana	Dog wood	Used as firewood	8 in to 9 in.
20	. . . . .	Black Malita . . .	Very little used for any purpose	6 in. to 1 ft.

(a) Bark very good for tanning, and an extract from it is also used as a medicine.

(b) Middling; not very good.

(c) A liquid extracted from this tree, by tapping it in season, the colour of blood, is used for staining furniture.

(d) The bark of this tree is remarkably strong and used for tying brooms.

(e) Not good.

(f) Only fit for the fire.

(g) Not good firewood.

The following two tables show the prevailing winds and distribution of rain throughout the year on the island. The winds are always high. I regret that it did not occur to me in 1840, when I began to keep a meteorological journal,* to construct a rain-gauge, so as to determine also the absolute fall of rain; but even if I had, it would have given but little idea of the real supply. In the summer droughts the ground becomes so hot that slight showers rise from it in steam almost as they fall; and in the same season heavy rain runs off the steep declivities for several hours, scarcely penetrating at all, till the superficial crust is dissolved. After this, the loose nature of the soil imbibes a great deal; and thus, not unfrequently, our rills, which swell instantly on a first fall of rain, and sometimes even precede this, giving note of its coming, subside with its continuance. They run off more rapidly than they again fill.

* An abstract of this journal was annexed to my last year's report. The most remarkable thing in it is the equality of temperature and atmospheric pressure in all seasons of the year. The variations are very small. The following still more condensed abstract will show within what limits this is to be understood.

Abstract of Meteorological Journal kept at Norfolk Island, from May, 1840, to 31st December, 1843, inclusive.

Quarter ending	1840						1841					
	Thermometer.			Barometer.			Thermometer.			Barometer.		
	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.
March . . . . .	..	..	..	..	..	..	81	68	75.13	30.05	29.60	29.91
May and June . .	73	60	64.15	30.25	29.40	29.92	76	60	68.11	30.25	29.60	30.30
September . . .	68	56	61.74	30.40	29.45	30.30	68	58	62.21	30.25	29.60	29.97
December . . .	76	60	68.74	30.30	29.50	29.70	80	66	72.24	30.20	22.70	29.94
Mean . . . . .	..	..	64.02	..	..	29.87	..	..	69.39	..	..	30.03

Quarter ending	1842						1843					
	Thermometer.			Barometer.			Thermometer.			Barometer.		
	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.
March	90	68	77.15	30.10	29.65	29.84	92	62	75.5	30.15	29.20	29.89
May and June . .	88	62	69.68	30.15	29.45	29.72	92	62	73.61	30.30	29.20	30.27
September . . .	78	62	66.98	30.20	29.60	29.86	87	60	67.64	30.25	29.45	29.98
December . . .	91	59	72.55	30.20	29.30	29.89	84	55	72.23	30.20	29.50	29.87
Mean . . . . .	..	..	69.49	..	..	29.86	..	..	72.07	..	..	29.99

Statement of the Number of Days in each Quarter the Wind has blown from the under-mentioned Points of the Compass at Norfolk Island from May, 1840, to December, 1843.

Periods.	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
From 15 May to Sept. 1840 . . .	13	2	7	27	44	19	17	9
Oct. to Dec. 1840 . . .	7	7	32	30	9	3	..	4
Jan. to March, 1841 . . .	5	10	30	31	7	2	..	5
April to June, 1841 . . .	4	12	19	21	10	15	1	9
July to Sept. 1841 . . .	6	7	8	11	9	34	3	14
Oct. to Dec. 1841 . . .	7	8	11	14	10	35	..	7
Jan. to March, 1842 . . .	1	20	34	17	3	10	..	5
April to June, 1842 . . .	4	15	1	29	8	18	7	9
July to Sept. 1842 . . .	2	16	5	14	6	36	4	9
Oct. to Dec. 1842 . . .	6	9	6	25	3	30	..	13
Jan. to March, 1843 . . .	1	29	20	12	20	5	1	2
April to June, 1843 . . .	3	16	12	25	3	13	6	14
July to Sept. 1843 . . .	8	9	3	9	15	29	6	13
Oct. to Dec. 1843 . . .	4	6	16	28	7	26	..	5
Total during 1326 days . . .	71	166	204	293	154	295	45	118

Table showing the Number of Days on which Rain has fallen at Norfolk Island, from May, 1840, to December, 1843.

Month.	1840 Number of Days.	1841 Number of Days.	1842 Number of Days.	1843 Number of Days.
January . . . . .	..	3	3	9
February . . . . .	..	5	7	13
March . . . . .	..	4	4	10
April . . . . .	..	6	6	7
May	5	9	6	9
June	12	8	3	9
July	10	9	6	14
August	3	4	4	13
September	4	5	1	17
October	8	2	8	13
November	2	1	4	4
December	7	4	5	3
Total	51	60	57	121

II. Norfolk Island was first occupied as a dependency on New South Wales in 1787, and was not then meant as a station for the doubly convicted, or in any way as a place of increased punishment; but merely as affording means of distributing the prisoners sent to New South Wales, and increasing the resources for their employment and maintenance. Accordingly, free settlers were allowed to come with them; and gradually the population of these amounted, as far as I can learn, to about 120 souls, and of the prisoners to about 250. A much greater number of the latter, it is said even to the extent of 700, were at one time sent down to make a pier, and some other works deemed requisite; but they were removed in 1797, shortly after the severe earthquakes of that year, which are said to have materially altered the views of Government in relation to the island. In the whole of this statement, however, I speak chiefly on report; that also being principally founded on the now somewhat vague recollections of the old prisoner already adverted to (John Brown, per "Atlas"), who is

marked on our books as having only been transported in 1800, but who states that this was a second conviction, and that he was an assigned servant on the island from 1793 to 1797. In 1810 it was deemed inexpedient to retain the settlement on these terms. The returns from it were found to be few, and very uncertain. It did not always feed even its own population. The communication with it was at the same time uncertain and expensive. The settlement had, consequently, been several times reduced to extreme distress. From its sequestered position, and other causes, its morals were represented to have become extremely depraved; and Van Dieman's Land, just then begun to be settled, and not labouring under the same local and physical disadvantages, was calculated to serve better every object contemplated in the occupation of Norfolk Island. The free settlers in the latter were accordingly offered equivalent grants of land there, which they were compelled, though reluctantly, to accept. The bond were removed, and the island was for 15 years abandoned.

It was re-occupied in 1825, but on the new footing of a penal settlement, without free settlers, and with increased severity of discipline and other management. The establishment was at first small, but rapidly increased. The following table will show the movement of its bond population from that period to the present.

Table showing the Number of Prisoners who have arrived on Norfolk Island in each Year, their Movement, and Number at the end of each Year, from 28th June, 1825, to 31st December, 1843.

Date.	Arrived from Sydney.	Sent to Sydney on Indulgence.	Sent to Sydney for Trial.	Absconded.	Died from Natural Causes.	Drowned, or accidentally Killed.	Murdered.	Executed.	Killed resisting Lawful Authority.	Suicides.	Bond Population on 31st December of each Year.
1825	88	3	..	..	1	..	..	..	..	..	84
1826	35	8	4	..	1	2	..	..	3	1	100
1827	80	34	..	..	1	..	..	..	1	..	144
1828	76	29	..	..	..	..	..	..	..	1	190
1829	106	36	..	..	2	2	..	..	..	..	256
1830	266	37	4	10	3	1	1	..	..	..	466
1831	135	53	..	..	1	1	..	..	..	..	546
1832	133	85	13	..	3	..	..	1	..	..	577
1833	208	71	..	16	9	1	2	3	1	..	682
1834	219	72	..	..	6	1	..	13	5	..	804
1835	331	53	..	..	9	3	1	2	1	..	1,066
1836	240	44	..	..	13	..	..	..	..	..	1,249
1837	174	68	..	..	21	1	..	..	..	..	1,333
1838	174	36	..	..	17	6	..	..	1	..	1,447
1839	218	421	..	..	21	3	..	..	..	..	1,220
1840 {	345	279	..	6	9	2	..	..	..	..	1,269
	619	1	..	..	15	..	..	..	..	..	603
1841 {	80	160	..	4	13	2	..	..	..	..	1,170
	29	2	..	5	3	1	..	..	..	..	621
1842 {	8	233	8	8	14	1	1	..	5	..	908
	29	3	..	..	37	..	..	..	..	..	610
1843 {	..	170	..	5	21	..	..	..	..	..	712
	..	..	..	1	25	1	..	..	..	..	583
	2,916	1,892	29	49	165	26	5	19	17	2	..
	677	6	..	6	80	2	..	..	..	..	..

The second row of figures in the four last years in this table indicates the prisoners sent direct from England in 1840, and who were proposed to be placed under my own particular plan of management. Besides other interest in the table, its columns will conveniently class my other statements on the subject; and I proceed, therefore, now to fill up details in regard to each.

1. *Men arrived from Sydney.* The total number of these is 3,593; distributed, as seen in the table, into 2,916, under the old system, and 677 under the new; who are further classed out in the following table, according to their countries, religion, and original sentences, so far as we can gather all these from our records, which in earlier years are meagre, and in some particulars imperfect.

Return, showing the Country, Religion, and Original Sentences of all Prisoners who have arrived at Norfolk Island, from 25th June 1825, to the 31st December, 1843.

Country.	Born in the Colony.		Came Free.		Original Sentences not stated.		4 Yrs.	5 Yrs.	7 Years.			10 Years.	
	Protestant.	Catholic.	Protestant.	Catholic.	Protestant.	Catholic.	Catholic.	Protestant.	Protestant.	Catholic.	Jew.	Protestant.	Catholic.
English . . .	10	..	45	..	30	..	..	1	721	..	6	7	3
	81	7	..	115	5
Irish	5	..	31	..	18	1	..	..	625	..	2	3
	31	187	..	8	44
Scotch	3	..	11	..	..	..	26	..	..	..	..
	6	3	..	2	..
Foreign	2	1	..	..
	3	2	..	2	..
General Total . .	10	5	48	31	41	18	1	1	747	627	7	9	6
	121	199	..	127	49

Country.	12 Years.		14 Years.			15 Years.		21 Years.	Life.			Total.
	Protestant.	Catholic.	Protestant.	Catholic.	Jew.	Protestant.	Catholic.	Protestant.	Protestant.	Catholic.	Jew.	
English . . .	1	..	231	..	2	6	..	1	747	..	7	1,818
	26	..	..	48	3	2	36	..	1	324
Irish	1	..	29	..	..	2	..	..	248	..	905
	1	5	..	1	18	..	1	26	..	322
Scotch	59	..	..	..	..	..	28	..	..	127
	6	1	..	..	..	..	2	..	..	20
Foreign	2	1	6
	1	..	..	1	..	..	1	..	..	10
General Total . .	1	1	290	29	2	6	2	1	775	250	8	2,916
	34	6	..	50	21	2	40	26	1	676

The principle of classification adopted in this table, somewhat modified, is still further carried out in the following one, which is otherwise interesting viz. —

Return showing the Places and Courts where First Convicted, of all Prisoners who have arrived at Norfolk Island, from June, 1825, to December, 1843.

	7 Years.			10 to 21 Years.			Life.			Total.
	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	
EASTERN COUNTIES:—										
London and Middlesex	96 11	54 ..	3 ..	48 44	3 ..	.. ..	182 12	56 ..	1 ..	443 67
Lincolnshire . . . . .	..	5	..	2	..	..	3	..	..	10
Huntingdonshire . . . . .	..	..	..	2	..	..	..	..	..	2
Huntingdonshire . . . . .	..	..	..	..	..	..	3	..	..	3
Cambridgeshire . . . . .	..	..	..	1	..	..	..	..	..	1
Cambridgeshire	1	4	..	2	..	..	3	..	..	10
Norfolk . . . . .	..	..	..	..	..	..	..	..	..	..
Norfolk	6	15	..	4	2	..	12	1	..	40
Suffolk . . . . .	..	2	..	1	2	..	..	..	..	5
Suffolk	2	8	..	4	..	..	7	..	..	21
Essex . . . . .	..	..	..	..	..	..	..	..	..	..
Essex	5	8	..	4	2	..	15	2	1	37
Hertfordshire . . . . .	..	5	..	2	6	..	2	2	..	17
Hertfordshire	1	6	..	4	2	..	2	..	..	15
Kent	2	..	..	1	4	..	..	..	..	7
Kent	6	10	..	6	3	3	21	3	..	52
Bedfordshire	1	3	..	2	7	..	1	..	..	14
Bedfordshire	2	3	..	..	..	..	7	..	..	12
Totals . . . . .	..	3	..	..	2	..	..	..	..	5
Totals	119 14	113 13	3 ..	74 53	12 21	3 ..	255 15	62 2	2 ..	643 118
NORTHERN COUNTIES:—										
Northumberland	1	3	1	1	..	1	8	1	..	16
Cumberland . . . . .	..	..	..	..	..	..	..	..	..	..
Cumberland . . . . .	..	4	..	1	..	..	..	..	..	5
Durham . . . . .	..	..	..	..	..	..	..	..	..	..
Durham . . . . .	..	..	..	..	5	..	..	15	..	20
Yorkshire	1	..	..	..	1	..	..	..	..	2
Yorkshire	16	44	..	11	6	..	29	4	..	110
Westmoreland	1	6	2	5	..	..	..	..	..	14
Westmoreland	1	..	..	1	..	..	2	..	..	4
Lancashire . . . . .	..	1	..	..	..	..	..	..	..	1
Lancashire	20	115	1	15	28	1	41	11	..	232
Totals . . . . .	..	11	..	6	9	..	1	..	..	27
Totals	38 2	166 18	2 2	29 11	39 10	2 ..	80 1	31 ..	.. ..	387 44
WESTERN COUNTIES:—										
Cheshire	1	19	..	1	3	..	10	4	..	38
Cheshire . . . . .	..	2	..	3	7	..	1	..	..	13
Shropshire	1	8	..	5	..	..	8	..	..	22
Shropshire . . . . .	..	..	..	1	..	..	..	..	..	1
Herefordshire	1	..	..	3	1	..	10	..	..	15
Herefordshire . . . . .	..	..	..	2	1	..	1	..	..	4
Monmouthshire . . . . .	..	1	..	..	..	..	3	..	..	4
Monmouthshire . . . . .	..	..	..	..	..	..	..	..	..	..
Totals	3 ..	28 2	.. ..	9 6	4 8	.. ..	31 2	4 ..	.. ..	79 18

Return showing the Places and Courts, &c.—continued.

	7 Years.			10 to 21 Years.			Life.			Total.
	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	
MIDLAND COUNTIES :—										
Rutland. . . . .	..	1	..	..	..	..	..	..	..	1
Nottinghamshire	1	10	..	7	4	..	9	2	..	33
Derbyshire	3	2	..	2	..	..	8	1	..	16
Staffordshire	6	15	..	3	5	..	1	..	..	7
Leicestershire	5	6	..	3	5	..	1	..	..	49
Northamptonshire . . . . .	..	1	..	3	1	..	7	1	1	10
Warwickshire . . . . .	..	2	..	4	..	..	..	..	..	24
Worcestershire . . . . .	..	4	..	2	..	..	8	..	..	6
Gloucestershire . . . . .	..	..	..	3	4	..	..	2	..	14
Oxfordshire	8	11	..	9	3	..	27	..	..	9
Buckinghamshire . . . . .	..	3	..	7	..	..	..	..	..	58
	..	18	..	4	1	..	17	..	..	10
	..	2	..	3	6	..	2	..	..	40
	8	4	..	1	1	..	23	..	..	13
	..	2	..	4	5	..	1	..	..	37
	..	1	..	2	..	..	3	..	..	12
	..	..	..	..	..	..	..	..	..	6
	..	1	..	1	..	..	2	..	..	..
	..	..	..	3	1	..	..	..	..	4
	..	..	..	3	1	..	..	..	..	4
Totals	31	73	..	33	11	..	128	5	1	282
	..	11	..	20	34	..	5	2	..	72
SOUTHERN COUNTIES :—										
Surrey	9	33	..	6	..	2	20	7	..	77
Sussex . . . . .	..	4	..	..	3	..	..	..	..	7
Berkshire	5	7	..	3	1	..	23	3	..	42
Wiltshire	1	..	..	1	4	1	..	..	..	7
Hampshire	2	9	..	1	..	..	6	..	..	18
Dorsetshire . . . . .	..	..	..	3	..	..	1	..	..	4
Somersetshire	3	9	..	1	..	..	15	..	1	29
Devonshire	1	..	..	6	1	..	..	1	..	9
	2	10	2	2	..	2	9	..	..	27
	..	..	..	..	1	..	..	..	..	1
	1	1	..	..	1	..	5	..	..	8

	7	19	..	8	5	..	28	2	..	69
	1	1	..	..	4	1	1	..	..	8
	8	16	..	5	2	..	9	6	..	46
	..	..	..	2	..	..	..	..	..	2
Totals	37	104	2	26	9	4	115	18	1	316
	3	5	..	12	13	2	2	1	..	38
NORTH WALES :—										
Carnarvon	1	..	..	..	..	..	1	..	..	2
Denbigh . . . . .	..	..	..	1	..	..	1	..	..	2
Montgomery . . . . .	..	3	..	..	1	..	..	..	..	1
Flint . . . . .	..	..	..	..	1	..	1	..	..	3
Carmarthen . . . . .	..	..	..	..	3	..	..	2	..	2
	..	..	..	..	2	..	..	..	..	5
	..	..	..	..	1	..	..	..	..	2
	..	..	..	..	1	..	..	..	..	1
	..	..	..	..	..	1	..	..	..	1
Totals	1	3	..	1	4	..	2	2	..	13
	..	..	..	..	4	..	2	..	..	6

Return showing the Places and Courts, &c.—continued.

		7 Years.			10 to 21 Years.			Life.			Total.
		S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	
SOUTH WALES :—											
Cardigan . . . . .	{	..	..	..	..	..	1	..	..	..	1
	
		..	1	..	..	..	..	2	3	..	6
Glamorgan . . . . .	{	..	..	..	..	1	..	..	..	..	1
	
		..	..	..	..	1	..	..	..	..	..
Totals	{	..	1	..	..	..	1	2	3	..	7
		..	..	..	..	1	..	..	..	..	1
LEINSTER :—											
Dublin	{	156	..	3	6	..	..	83	..	4	253
		44	4	5	14	..	1	2	..	..	70
Carlow	{	12	..	..	..	..	..	..	..	..	12
		4	..	..	..	..	..	..	..	..	4
Drogheda	{	3	..	1	1	..	..	..	..	..	5
		3	..	..	..	..	..	..	..	..	3
Kildare	{	8	..	..	..	..	..	..	..	..	8
		3	..	..	3	..	..	..	..	..	6
King's County	{	6	..	..	..	..	..	4	..	..	10
		1	..	..	3	..	..	..	..	..	4
Kilkenny	{	21	..	..	..	..	1	2	..	..	24
		1	..	..	1	..	..	1	..	..	3
Longford	{	8	..	..	..	..	..	1	..	..	9
		1	..	..	4	..	..	3	..	..	8
Louth	{	14	..	..	..	..	..	4	..	..	18
		3	..	..	2	..	..	..	..	..	5
Meath	{	15	..	..	1	..	..	12	..	..	28
		9	..	..	3	..	..	1	..	..	13
Queen's County	{	13	..	..	1	..	..	4	..	..	18
		..	..	..	2	..	..	..	..	..	2
Wexford	{	7	..	..	..	..	..	3	..	..	10
		3	..	..	..	..	..	..	..	..	3
Wicklow	{	7	..	..	..	..	..	1	..	1	9
		..	..	..	2	..	..	..	..	..	2
Totals	{	270	..	4	9	..	2	114	..	5	404
		72	4	5	34	..	1	7	..	..	123
MUNSTER :—											
Clare	{	8	1	..	..	..	..	6	..	..	15
		5	..	..	1	..	..	..	..	..	6
Cork	{	90	..	..	1	..	2	20	..	..	113
		14	..	..	1	..	..	1	..	..	16
Kerry	{	22	..	..	..	..	..	3	..	..	25
		2	..	..	..	..	..	..	..	..	2
Limerick	{	33	1	..	..	..	..	6	..	..	40
		29	..	..	6	..	..	5	..	..	40
Tipperary	{	39	..	..	..	..	..	21	..	..	60
		11	..	..	5	..	..	3	..	..	19
Waterford	{	11	..	..	1	..	..	5	..	..	17
		3	..	..	..	2	..	..	..	..	5
Totals	{	203	2	..	2	..	2	61	..	..	270
		64	..	..	13	2	..	9	..	..	88

Return showing the Places and Courts, &c.—continued.

	7 Years.			10 to 21 Years.			Life.			Total.
	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	
CONNAUGHT :—										
Galway	10	..	..	2	..	..	5	..	..	17
Leitrim	8	..	..	1	..	..	..	..	..	9
Mayo	5	..	..	..	..	..	2	..	..	7
Roscommon.	11	..	..	..	..	..	1	..	..	1
Sligo	6	..	..	..	2	..	3	..	..	14
	2	..	..	1	..	..	..	..	..	8
	8	..	..	1	..	..	8	..	..	11
	..	..	..	1	..	..	1	..	..	2
	8	..	..	..	..	..	1	..	..	9
	1	..	..	2	..	..	..	..	..	3
Totals	36	..	..	3	..	..	19	..	..	58
	15	..	..	4	2	..	2	..	..	23
ULSTER :—										
Antrim	25	..	..	1	..	..	13	..	..	39
Armagh.	8	..	..	3	..	..	1	..	..	12
Cavan	9	..	..	..	..	..	5	..	..	14
Down	4	..	..	2	..	..	..	..	..	6
Donegal	8	..	..	..	..	..	5	..	..	13
Fermanagh	10	..	..	3	..	..	3	..	..	16
Londonderry	14	..	..	2	..	..	5	..	..	21
Monaghan	3	..	..	3	..	..	..	..	..	6
Tyrone	1	..	..	1	..	..	1	..	2	5
Belfast . . . . .	..	..	..	3	..	..	..	..	..	3
	5	..	..	..	..	..	1	..	..	6
	2	..	..	2	..	..	1	..	..	5
	10	..	..	1	..	..	1	..	..	12
	3	..	..	1	..	..	..	..	..	4
	16	..	..	..	..	..	6	..	..	22
	3	..	..	2	..	..	1	..	..	6
	10	..	..	..	..	..	..	..	..	10
	..	..	..	3	..	..	..	..	..	3
	1	..	..	..	..	..	..	1	..	2

Totals	99	..	..	5	..	..	37	..	3	144
	33	..	..	22	..	..	6	..	..	61
SCOTLAND :—										
Edinburgh	4	..	..	16	..	..	12	..	..	32
Glasgow	1	..	..	3	..	..	..	..	..	4
Stirling	9	..	..	16	..	..	10	..	..	35
Dumfries	7	..	..	2	..	..	..	..	..	9
Perth	1	..	..	1	..	..	..	..	..	2
Aberdeen . . . . .	..	..	..	..	..	..	..	..	..	..
Ayr	1	..	..	2	..	1	..	..	..	4
Inverness . . . . .	..	..	..	1	..	..	..	..	..	1
	7	..	..	12	..	..	2	..	..	21
	..	..	..	1	..	..	1	..	..	2
	7	..	..	4	..	..	3	..	..	14
	1	..	..	..	..	..	..	..	..	1
	..	..	..	1	..	..	..	..	..	1
	..	..	..	2	..	..	..	..	..	2
	..	..	..	..	..	2	1	..	..	3
	..	..	..	..	..	..	1	..	..	1
Totals	29	..	..	52	..	3	28	..	..	112
	9	..	..	9	..	..	2	..	..	20

Return showing the Places and Courts, &c.—continued.

	4 to 5 Yrs	7 Years.				10 to 21 Years.			Life.			Total.
	S. C.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.		
COLONIES, &c.:—												
Australia	2	..	..	..	..	..	..	..	..	..	2
—, South	19	..	..	..	1	..	7	..	..	27	
Bhurtpore	1	..	..	..
Madras {	2	1	..	..	..	1	..	3	7	
	1	..	..	..	..	..	..	1	
Bombay {	7	..	..	..	..	..	1	8	
	1	..	..	..	..	..	..	1	
Calcutta	2	..	..	2	4	
Corfu	1	1	
Malta	2	2	
Palermo	1	1	
Messina	2	2	
Portugal	1	..	..	2	3	
La Valette.	2	2	
Sierra Leone	1	..	..	..	..	..	..	..	1	
Port Louis	1	1	..	..	..	..	..	2	
St. Kitt's	1	1	
Fort William	1	..	..	1	..	..	..	2	
Cape of Good Hope {	1	..	..	2	3	
	1	..	..	2	..	..	1	4	
Cambray	1	1	
Guernsey	1	..	..	..	1	
Grenada	1	..	..	..	..	..	1	2	
Petersburg	1	..	..	..	1	
Trinidad	1	1	
Jamaica	1	1	
Bellary	13	1	..	..	..	..	..	14	
Dungalore	1	..	2	..	..	1	..	..	..	4	
Tritchynopoly	1	..	..	..	..	..	..	1	
Kamptee	5	..	..	1	..	..	..	6	
Cannanore.	1	..	..	..	..	..	..	1	
Poonah	1	..	..	1	..	..	..	2	
Mhow	3	..	..	..	..	..	..	3	
Totals . . {	2	..	3	11	1	..	7	2	..	22	48	
	..	20	..	29	1	1	5	7	..	2	65	

First Recapitulation.

		4 to 5 Yrs.	7 Years.			10 to 21 Years.			Life.			Total.
		S. C.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	
ENGLAND AND WALES :—												
Eastern Counties	}	..	119	113	3	74	12	3	255	62	2	643
		..	14	13	..	53	21	..	15	2	..	118
Northern Counties	}	..	38	166	2	29	39	2	80	31	..	387
		..	2	18	2	11	10	..	1	..	..	41
Western Counties	}	..	3	28	..	9	4	..	31	4	..	79
		..	..	2	..	6	8	..	2	..	..	18
Midland Counties	}	..	31	73	..	33	11	..	128	5	1	282
		..	..	10	..	20	34	..	5	2	..	71
Southern Counties	}	..	37	104	2	26	9	4	115	18	1	316
		..	3	5	..	12	13	2	2	1	..	38
Wales	}	..	1	4	..	1	4	1	4	5	..	20
		..	..	..	..	..	5	..	2	..	..	7
Totals	}	..	229	488	7	172	79	10	613	125	4	1727
		..	19	48	2	102	91	2	27	5	..	296
IRELAND :—												
Leinster	}	..	270	..	4	9	..	2	114	..	5	404
		..	72	4	5	34	..	1	7	..	..	123
Munster	}	..	203	2	..	2	..	2	61	..	..	270
		..	64	..	..	13	2	..	9	..	..	88
Connaught	}	..	36	..	..	3	..	..	19	..	..	58
		..	15	..	..	4	2	..	2	..	..	23
Ulster	}	..	99	..	..	5	..	..	37	..	3	144
		..	33	..	..	22	..	..	6	..	..	61
Totals	}	..	608	2	4	19	..	4	231	..	8	876
		..	184	4	5	73	4	1	24	..	..	295
SCOTLAND	}	..	29	..	..	52	..	3	28	..	..	112
		..	9	..	..	9	..	..	2	..	..	20
COLONIES	}	2	..	3	11	1	..	7	2	..	22	48
		..	20	..	29	1	1	5	7	..	2	65

Second Recapitulation.

	4 to 5 Yrs.	7 Years.			10 to 21 Years.			Life.			Total.
		S. C.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.	S. C.	Q. S.	C. M.
England and Wales	229	488	7	172	79	10	613	125	4	1727
	..	19	48	2	102	91	2	27	5	..	296
Ireland	608	2	4	19	..	4	231	..	8	876
	..	184	4	5	73	4	1	24	..	..	295
Scotland	29	..	..	52	..	3	28	..	..	112
	..	9	..	..	9	..	..	2	..	..	20
Colonies	2	..	3	11	1	..	7	2	..	22	48
	..	20	..	29	1	1	5	7	..	2	65
Totals . . .	2	866	493	22	244	79	24	874	125	34	2763
	..	232	52	36	185	96	8	60	5	2	676

Born in the Colony 15
 Came free 79
 Original Sentences not stated. . . 59

Total arrived . . . 3,592

Third Recapitulation.—Showing the proportions in which Men have arrived from different Places and under different Sentences.

	First Con- victed Class.	Second Con- victed Class.
English to the whole. as	•479 to 1	•657 to 1
Welsh „ „	•011 „	•114 „
Irish „ „	•476 „	•330 „
Scotch „ „	•029 „	•043 „
London and Middlesex, to the rest of England „	•206 „	•24 „
Eastern Counties „ „ „	•36 „	•35 „
Northern Counties „ „ „	•13 „	•21 „
Western Counties „ „ „	•055 „	•043 „
Midland Counties „ „ „	•219 „	•155 „
Southern Counties „ „ „	•114 „	•17 „
Lancashire „ „ „	•083 „	•1276 „
Warwickshire „ „ „	•030 „	•0319 „
Staffordshire „ „ „	•030 „	•021 „
Yorkshire „ „ „	•043 „	•605 „
Dublin, City and County, to the rest of Ireland „	•217 „	•262 „
Province of Leinster „ „ „	•38 „	•418 „
„ Munster „ „ „	•27 „	•279 „
„ Connaught „ „ „	•071 „	•060 „
„ Ulster „ „ „	•18 „	•148 „
Edinburgh, to the rest of Scotland „	•20 „	•251 „
Glasgow „ „ „	•45 „	•275 „
Seven years' men „	•47 „	•47 „
Ten to 21 years' men „	•2633 „	•118 „
Life men „	•097 „	•35 „
Quarter Sessions Convicts „	•226 „	•239 „
Supreme Court Convicts „	•70 „	•646 „

It would be rash to consider a classification of the men who came here direct from home in 1840, as necessarily giving a correct example of the proportions in which they come to the colonies generally of different countries, and under different sentences; for, on the contrary, the several quantities may differ widely. Yet, taking the above tables and their recapitulations for just what they are worth, the following facts appear on them. 1. A larger proportion of English and Scotch, and a smaller of Irish, appears in the second convicted class than in the first. 2. The increase is in the convicts from the large towns, for, on the contrary, many of the rural districts decrease; and Dublin increases, though Ireland generally decreases. 3. Though the proportion from Edinburgh and Scotland increases, that from Glasgow will be seen to decrease, possibly owing to the number of Irish convicted from the latter, whose robust frames enable them to support hardship without inconvenience, and consequently without resistance, and who, in this respect, are more a rural than urban population. 4. The mining districts all over England are honourably low in these returns; and the densely peopled agricultural, as Surrey, Sussex, Kent, Somersetshire, and some others are high. 5. Beyond all the great towns the proportion increases most, in the second convicted class, from Yorkshire. But to make these observations, as already observed, really of value, more ample returns are required of first convicted men; and a reference to

the population returns of each district at home is also indispensable, which is not at present in my power.

2. *Men sent to Sydney on Indulgence.*—A great addition will be observed in the numbers in this column in 1839 and 1840. These were the two first years after the Act of New South Wales Council, 2 Vict. c. 1, was passed, regulating the conditions on which colonial sentences to the island might be commuted and ultimately remitted; and when the greatest degree of benefit to the men was consequently derived from it, by facilitating the removal of nearly all the well-conducted who had served over the periods required by it. The original purpose of the Act was not thus to clear the island, nor, as has usually since been considered, to fetter or direct the exercise of mercy by his Excellency the Governor; it was merely to enable men that might be so called up to be worked in irons in the colony in commutation of the remaining portions of their several sentences. But by fixing certain periods (one, three, and five years, for men under sentences for 7 years, 14 years, and life respectively) when application might be made to obtain for them the commutations prescribed by this Act, it did in fact altogether change the prospects of the whole body, and greatly improve their condition. The worst horrors of Norfolk Island may, in truth, be thus said to have terminated with the passing of this Act. Before it, men sent here had little or no prospect before them, except what was contingent on a capricious recommendation; and according to their several tempers they either sought to earn this by treachery, hypocrisy, or other unworthy service; or, despairing of attaining it at all, they became reckless, violent, mutinous, and insubordinate. Since, this has been much changed; with good conduct on the island every one has been certain of recommendation at the allotted period of his service proportioned to his sentence. The answer has not been always favourable; on the contrary, 260 men are here now who have been refused, besides 158 others, who having been once refused, have served two years more with good conduct, and been not less than 8 years in all on the island. (the conditions prescribed,) and who, thus again recommended, have been since allowed up. But even thus, hope has been extended nearly to all, and the effect has been excellent.

Up to September last (1843), 1200 men have thus been forwarded to Sydney from the beginning of 1839, and it is extremely interesting to trace their further progress, as exhibited in the following return, laid officially before the Legislative Council of Sydney:—See Table, page 21.

On this return some very important observations occur: 1. The entire number of re-convicted, considering the description of men, their going penniless from this island, the suspicion with which they are regarded in Sydney, and the associates to whom they there return, appears to me very small. 2. The proportion, however, in 1839 and the first three months of 1840, before I came here, is not so small; it is 20 out of 512 men in one year, or above 4 per cent. 3. The remaining 17 are distributed over four years of my administration, which by its laxity has been accused of encouraging crime in the colony; yet the proportion, even on this showing, is in three years and a half little more than 2 per cent. on the 688 men within this time discharged. 4. But much more striking is this fact when it is further considered that 6 of the 8 men stated in this list to have been re-convicted in September 1842, were

Return of the Number of Prisoners that have been landed in Sydney from Norfolk Island between 1st January, 1839, and 1st September, 1843; distinguishing those who have become Free, either by the expiration of their original Sentences, or by Pardon, and those who are still serving their Sentences in New South Wales; and showing the Number who have, since their return, been Re-Convicted, either in Supreme Court or by the Court of Quarter Sessions, throughout the Colony.

Date of Return to Sydney.	Number Returned.	Number Free by Servitude and Pardon.	Now Prisoners of the Crown.	Number Convicted since their return at Su- preme Court.	Or Quarter Sessions.
January 29, 1839 . . .	72	29	43	1	1
April 21, 1839 . . .	72	32	40	..	2
June 6, 1839 . . .	72	28	44	..	3
August 20, 1839 . . .	83	35	48	..	8
September 2, 1839 . . .	44	24	20	..	..
November 7, 1839 . . .	73	40	33	..	3
January 15, 1840 . . .	12	7	5	..	..
March 6, 1840 . . .	86	27	59	..	2
April 3, 1840 . . .	48	18	30	..	..
June 8, 1840 . . .	11	5	6	..	..
August 16, 1840 . . .	95	39	56	..	1
December 31, 1840 . . .	29	15	14	..	..
April 21, 1841 . . .	67	29	38	..	3
July 6, 1841 . . .	38	17	21	..	..
October 4, 1841 . . .	57	26	31	..	..
January 13, 1842 . . .	65	28	37	2	2
April 11, 1842 . . .	33	16	17	..	1
June 29, 1842 . . .	42	24	18	..	..
September 3, 1842 . . .	51	29	22	8	..
December 5, 1842 . . .	52	27	25	..	..
March 1, 1843 . . .	31	14	17	..	..
May 8, 1843 . . .	24	8	16	..	..
July 3, 1843 . . .	34	10	24	..	..
August 24, 1843 . . .	9	3	6	..	..
Total . . .	1,200	530	670	11	26

not men who went from this on indulgence and abused it, but men sent for trial for offences committed on the island (the attack on the "Governor Philip, &c." 1842), and who thus do not bear on this question at all. 5. Deducting them, accordingly, the proportion of my men re-convicted (11 out of 688) is little more than $1\frac{1}{2}$ per cent. in nearly four years, or $\frac{1}{8}$ per cent. per annum. 6. And it will place these facts in a still more striking light to state—first, that they were the best and ablest men who went away in 1839—so many more were then eligible than could immediately be removed that only the best were sent; secondly, during the year 1839 by far the severest system of discipline was maintained on the island that appears anywhere on its records: under it, with the same population, about 1300, the number of cases tried in court rose from a previous average of 462 to 811, and of lashes inflicted from a previous average of 9000 annually to 11,420; and further, *if the example of severity can deter from crime at all*, these men had themselves both witnessed and experienced it in this extreme; yet in this instance, as in so many others, it failed. Lastly, my greater success with the men has not been due to my own plans of discipline, which

have never been fully tried on the island, but simply to the object by which alone I have been animated, whether in trying or temporarily abstaining from them, viz., their reform. This idea had scarcely ever before been suggested to them; but they could all sympathise with it when it was proposed, and carry it as a rule of conduct with them. Would but the law adopt it, and modify its arrangements according to it, how much farther would it go! How many thousands now steeped in misery and vice would it thus save! and at the same time lessen crime, not increase it.*

3. *Men sent to Sydney for Trial*.—The following is a list of these, with their ages when first convicted, countries, original sentences, crimes for which transmitted for trial, degree of education and general intelligence, and ultimate fate, being the principal particulars regarding them:—See Table, page 23.

4. *Men who have Absconded*.—At different times six boats have been carried off from the island; and, considering the anxiety with which a chance of escape is watched for, and the daring with which, if offered, it is embraced, it is surprising that there have not been more. As illustrative of the state of society here, a few details regarding each of these successful enterprises may be interesting:—1. (1830). Ten men left their huts at night and repaired to the boat-harbour. One of them, who represented himself to be the coxswain, and who, as a skilful active seaman, was occasionally trusted to steer a boat, told the sentry that they were going to Philip Island for Mr. Cunningham, the botanist, then residing there. The soldier wished to call out the guard, the usual precaution when a boat is taken out; but being kept in conversation by one of the prisoners in his native tongue (Irish), he delayed till the boat was launched. It was then too late to stop them, and they proceeded first to Philip Island, where they plundered Mr. Cunningham of his watch and all his supplies, and afterwards put to sea. After being out nearly six weeks, during the last of which they were nearly without food, they were picked up almost exhausted by the “John Bull” whaler, identified on board of her as prisoners, and placed in confinement, but otherwise well treated. As their strength returned, however, so did their spirit of enterprise. They conceived a plan of seizing the vessel, in which they were assisted by one of the crew who had previously known some of their number. They are believed to have murdered every other on board excepting him; after which they plundered and scuttled the vessel, and proceeded to Pleasant Island, whence they all, with one exception, found means of departing, and have been heard of since, some in England others in America. The one who remained at Pleasant Island was elected chief there; and in this situation is said to have committed many murders and other excesses through jealousy and rapacity. At last he was expelled, and when last heard of was working in irons at Manilla. His name, if still alive, is Coil: he is a native of Ireland, of the lowest caste.—2. (1833). Two Government vessels, a brig and schooner, were at anchor off the settlement, and a launch was working each. One of these boats was coming from the one vessel with maize,

* From a communication received from Norfolk Island, dated 26th June last, I learn that an additional return of the same nature with the above had been laid before the Legislative Council in April, showing 240 more sent up, of whom not one had been then re-convicted. Four were awaiting trial.

Name.	Age.			Sentence.		Offence on the Is-land for which Tried.	Religion & Country.	Education, &c.	Previous Occupa-tion.	Date when sent for Trial.
	When first Convicted.	When sent to the Island.	When sent for Trial.	Original.	Colonial.					
E. W. (a)	21	26	28	7 yrs.	Life	Murder of a soldier in mutiny 1826	E. P.	Read and write.	Labourer . .	Mar. 1827
W. M. (a)	19	24	26	Life	„	Ditto . . .	S. Pres.	Intelligent, read and write . .	Potter	Ditto.
J. W. (b)	18	26	28	„	„	Ditto . . .	E. P.	„	Farmer	Ditto.
J. G. (a)	21	34	36	14 yrs.	„	Ditto . . .	E. P.	Read	Mariner	Ditto.
J. C. (a)	17	26	28	7 yrs.	„	Murder . .	E. P.	Read and write.	Sailor	Ditto.
W. B. (a)	24	28	30	Life	„	Ditto . . .	E. P.	„	Weaver	Mar. 1830
J. M. (a)	21	30	32	7 yrs.	„	Ditto . . .	I. C.	Read	Labourer . .	Ditto.
J. W. (a)	18	26	28	„	7 yrs.	Attempt at murder . .	I. C.	Read and write.	Waterman . .	Ditto.
J. M'D. (c)	20	23	27	Life	Life	Ditto . . .	I. C.	Not read	Porter	Ditto.
F. M. (d)	25	29	31	7 yrs.	„	Ditto . . .	I. C.	Ignorant	Tiuan	Mar. 1832
F. A. (e)	21	26	31	„	„	Ditto . . .	E. P.	Read, and intel-ligent	Servant	Ditto.
J. M'G. (e)	10	19	21	„	„	Ditto . . .	I. C.	Read and write; not intelligent.	Labourer . .	Ditto.
C. D. (e)	19	26	34	„	„	Ditto . . .	I. C.	Read and intel-ligent	Servant	Ditto.
D. C. (e)	19	24	26	Life	„	Ditto . . .	S. Pres.	Read, and very intelligent . .	Cabinet-maker	Ditto.
C. L. (e)	13	24	30	7 yrs.	„	Ditto . . .	E. P.	Very ignorant . .	Labourer . .	Ditto.
L. C. (e)	24	32	38	Life	„	Ditto . . .	E. C.	Read, and intel-ligent	Ditto	Ditto.
R. M. (e)	21	34	35	7 yrs.	14 yrs.	Ditto . . .	E. P.	Read and write; intelligent . .	Ditto	Ditto.
J. W. (e)	23	31	34	„	„	Ditto . . .	I. C.	Read and write; not intelligent.	Ditto	Ditto.
C. B. (e)	11	20	21	Life	Life	Ditto . . .	E. P.	Read and write.	Ditto	Ditto.
T. M. (e)	12	17	18	7 yrs.	„	Ditto . . .	I. C.	Read, and intel-ligent	House servant	Ditto.
G. M. (e)	17	30	31	„	„	Ditto . . .	E. P.	Read and write.	Carpenter . .	Ditto.
S. B. (a)	11	26	28	„	„	Murder of P. Lynch.	I. C.	Ditto	Labourer . .	{ 30 Sept., 1842.
J. J. (a)	16	30	32	Life	„	Piracy and murder . .	E. P.	Read and write, and intelligent	Shoemaker . .	Ditto.
G. B. (a)	19	30	32	7 yrs.	14 yrs.	Ditto . . .	E. P.	Ditto	File cutter . .	Ditto.
H. S. (a)	14	30	32	Life	„	Ditto . . .	E. P.	Ditto	Mariner	Ditto.
N. L. (a)	14	22	24	14 yrs.	Life	Ditto . . .	E. P.	Read; not intel-ligent	Ditto	Ditto.
J. W. (f)	12	26	28	7 yrs.	„	Ditto . . .	E. P.	Ditto	Waterman . .	Ditto.
J. B. (g)	24	28	30	„	„	Ditto . . .	E. C.	Ditto	Soldier and seaman . .	Ditto.
T. W. (g)	22	24	26	„	7 yrs.	Ditto . . .	I. C.	Read and intel-ligent	Labourer . .	Ditto.

(a) Executed in Sydney. (b) Died on his passage. (c) Returned and executed on the Island.
(d) Sentence—irons, in addition to former sentence. (e) Returned, and summarily punished.
(f) Sent to Cockatoo Island; attempted to escape: 100 lashes. (g) Sent to Cockatoo Island.

Recapitulation.

Age when first Convicted.			Original Sentences.			Country.				Education and General Intelligence.				Subsequent Fate.	
Under 20.	20—25.	Above 25.	7 years.	10 to 21 yrs.	Life.	English.	Irish.	Scotch.	Foreign.	Could Read.	Not Read.	Generally Intelligent.	Not Intel-ligent.	Otherwise Punished.	Otherwise Punished.
17	11	1	18	2	9	18	9	2	..	26	3	18	11	12	17

while the other was carrying water to the other; and, when they met, 16 stout hands, as previously concerted, seized the boat with the maize, took on board what water they could safely carry, double-banked their oars, and pulled away, leaving the other boat with only one oar. The brig immediately weighed anchor in pursuit, but the wind was very light, and they were soon lost from sight, the night coming on. Notwithstanding that there was an experienced navigator among them, these men are said to have been 28 weeks at sea; and when they made the land to the northward of Moreton Bay, only three of the sixteen were alive, one a native of New South Wales, the other two Englishmen, from London. They all got safely into the interior, and were for some years afterwards about the colony, but are believed to be now either dead or gone from it. A story is current that one of them was afterwards a prisoner for some time in Bathurst Gaol, where the coxswain from whom he took the boat was gaoler, and having a false name he was not detected; but such tales of narrow escapes are favourites with prisoners, and should not be very much relied on.—3. (1840). A party of officers proceeded in a whale-boat to Philip Island, about six miles distant, for the purpose of shooting. The crew consisted of six prisoners and a free coxswain. After the day's sport, the officers were about returning, and incautiously handed in their fire-arms first to the prisoners in the boat, who immediately seized them, marched them back to a hut at some distance from the beach, tied them there, and having collected whatever suited their purpose, returned to the boat and put to sea. One prisoner who was otherwise near his liberty, refused to join them. They are said to have made New Zealand in seven days, where they dispersed, and most of them are believed to be now whaling. With one exception, they were all well conducted here; the opportunity given them was irresistible.—4. (1841). The Government brig with stores was at Cascade, and being thus above five miles by water from the settlement, only one boat was working her. Nine men snatched this just at nightfall, and put to sea. Some time was necessarily lost before the alarm could be given to the brig, it was thus quite dark, and the following morning proved thick. This party also made New Zealand. Jordan, the notorious Custom-house robber, was of their number, and has been heard of since in the United States, where he is said to have again committed some successful robberies. His companion, Sullivan, has also since effected his escape from New South Wales, and they are thus probably again together. The other men have been also heard of, doing well and honestly, engaged in fishing, but I have no particulars of them.—5. (1842). A cave having been dug in an officer's garden, behind a stock-house built against a steep bank, the servants attached to it, in combination with six other prisoners, making eight in all, built a boat in this, and succeeded in a dark night in getting to sea in her. A very heavy gale, however, arose the following day, which it is not believed that the boat could outlive. The leader in this enterprise deserved a better fate. He was a Scotchman, named M'Dougall, of singularly daring and intrepid character, and with many good points about him, and good impulses, but all misdirected. He was a very old prisoner on the island, and had been one of the mutineers in 1826, when the boats were seized and taken across to Philip Island, where he, with a few others, managed to secrete himself during many months before he could be recaptured.

He had been once sent to Sydney in the interval on indulgence, but being re-convicted, was returned within two years. He was a very bold, daring man, who set his face against petty theft, and would even expose and detect it, but could not resist the temptation of what was striking or hazardous. Some little time before he went away he earnestly dissuaded some of his companions from a proposed theft of sacramental plate from the quarters of the Protestant clergyman. He said that "such a theft would bring a curse with it;" and meditating, as he must then have been, his other enterprise, it is possible that a touch of early reverence for things sacred may in this instance have kept him back. But, in general, he would refuse what did not involve danger or striking enterprise, and nothing that did. Had he been a soldier, in stirring times, his career might have been very different.—6. (1843). Three soldiers on duty, one over the gaol, which is near the boat-harbour, another over the boat-sheds, and the third at the door of the harbour guard-room, deserted their posts in the middle of the night, and, in concert with six prisoners, who had previously made all necessary preparations, carried a whale-boat to the harbour, and succeeded, with the exception of one of the soldiers, now waiting a court-martial, in getting away. They were first discovered making off by a prisoner, who slept in the neighbourhood, and who was awaked by the noise made by a dog about his house. He alarmed the police-runner, who called out the guard, and so little time was thus lost that a heavy, and it was thought not ineffectual, fire was poured into the boat as the men in her were endeavouring to haul in their companion, the soldier left behind, who in the bustle had got overboard. It was thus that he was retaken. The others got away. Two boats were instantly sent after them, but, the night being dark, they were not seen; and the following morning proved also thick. They were not discovered till sunset, when they were seen from Mount Pitt, on the extreme verge of the horizon, W.N.W., and thus far beyond pursuit.

It will be observed that these casualties have been much more common of late years than formerly, and this may, perhaps, be attributed to the want of old precautions. But on considering the circumstances attentively, this will not appear so certain a solution. The navigation of the Pacific is now so well known, that enterprises of this kind are stripped of half their old terrors; and the tendency of public opinion in England has of late years been so pronounced in favour of the amelioration of prisoners' condition and prospects, that those of them who, from accidental circumstances, have no very favourable prospect before them, are much more impatient in this position than they used to be. The prospects of escaped men are also fairer now than they were. When all capital and trade were in this neighbourhood confined to the penal colonies, eventual escape appeared so difficult, that all but the very stoutest shrank from attempting it; but now New Zealand, many extensive whaling establishments, and a better knowledge of the islands and inhabitants of the Pacific, all open more extensive views, and excite to more active enterprise. I thus doubt much whether any measures will entirely prevent absconding from this island in future, unless the prospects of the prisoners confined on it are materially improved; but the most efficient means and the most likely to be successful would, I think, be the maintaining the communication with head-quarters by two small vessels,

instead of one, and keeping one of them constantly about the island till relieved by the other, which should then take her turn. The constant presence of a cruising vessel would, in some degree, deter from such attempts; and when made she could not but sometimes overtake and bring the delinquents back, which would still farther contribute to damp succeeding enterprise.

5. *Men who have died from natural causes.*—For use in this report I have obtained a detailed account of all diseases treated in the Civil Hospital here since 1837, with the number of deaths and medical remarks, furnished by Mr. Colonial Surgeon Graham, the senior medical officer. The records of the hospital do not go farther back. I have further, however, obtained from the other records of the island a detailed account of men (150 penal prisoners and 80 belonging to the new establishment), who have died since the beginning of 1833; and in the following tables I condense the chief information so afforded. Dr. Graham's recapitulation of hospital cases since 1837 is as follows:—See Table, page 27.

On which the following observations occur:—1. By referring to the population return, p. 11, it will be seen that the collective population within the period here embraced, viz., from the beginning of 1837, is 10,476; the cases have accordingly been 1 in $2\frac{1}{2}$, and deaths 1 in $56\frac{3}{8}$. 2. The rate of sickness and mortality, it will be observed, however, has been very different among the penal and new prisoners, 2429 cases having occurred among 8059 arrivals, or 1 in $3\frac{1}{3}$, with 109 deaths, or 1 in 74 among the former; and 1622 cases among 2417 arrivals, or 1 in $1\frac{1}{2}$, with 80 deaths, or 1 in $30\frac{1}{2}$, among the latter. 3. This great difference I apprehend to have been caused mainly by the penal prisoners having been seasoned to the climate before coming on the island, and seasoned also in favourable circumstances, viz., on a full ration of food, consisting of fresh meat, wheaten flour, tea, and other luxuries, in private service in New South Wales; while the latter have here had only the Government ration of salt meat and maize meal, in itself not adequate to support the constitution under a change of climate, with labour, after a long sea voyage, and further rendered insufficient by the great repugnance felt by the men at first to the maize meal. 4. I consider this point, then, of great importance in the future appropriation of this island. I doubt if men should be sent to it direct from England at all, but at any rate they should not exceed in number what can be supplied from the resources of the island with two or three meals of fresh meat (beef and mutton) weekly; and for the first six or eight months they should have a proportion of wheaten bread with their maize. 5. In the peculiar circumstances, the mortality among the penal prisoners appears to me low. (The peculiar circumstances to which I allude may be thus summed up:—On the one hand there are no young lives here, and the proportion of old is small. The climate is fine, and the temperature, in particular, is very equable. Exposure to sudden changes of any kind is thus rare. Vegetable food is good and abundant. Medical attendance is constantly at hand; and from circumstances connected with their penal condition, the men are disposed to complain soon and thus to give it fair play. On the other hand, having mostly passed a vicious youth, and many of them being the offspring of vicious parents, there is a strong scrofulous and scorbutic

Men who have died from Natural Causes.

DISEASES	1837		1838		1839		1840		1841		1842		1843		Total Cases from 1837 to 1843	Total Deaths from 1837 to 1843
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.		
<i>Diseases of the Digestive Functions.</i>																
Affecting the alimentary canal {	30	2	19	..	13	2	5	..	9	..	22	..	13	2	111	6
Affecting the auxiliary viscera {	3	..	2	..	..	..	31	..	15	..	16	..	26	..	88	..
	..	..	..	..	..	..	1	1	7	..	1	..	4	..	18	1
	..	..	..	..	..	..	1	..	3	..	..	..	..	..	4	..
<i>Diseases of the Respiratory Functions.</i>																
Affecting the lungs and their membranes {	5	..	8	..	4	..	7	..	2	..	..	..	..	..	26	..
	..	..	..	..	..	..	6	..	..	..	..	..	..	..	6	..
<i>Diseases of the Sanguineous Functions.</i>																
Fevers {	35	..	30	1	21	1	41	..	41	2	92	1	41	2	301	7
Inflammation of the viscera, local inflammation. {	170	5	125	9	36	1	29	..	50	..	38	3	14	1	123	4
Inflammation of the eye, and its appendages. {	6	..	13	..	19	..	34	..	29	1	35	2	46	1	527	26
Dysentery and Catarrhus {	113	7	62	4	24	1	361	2	31	4	54	4	24	9	144	4
Consumption, Scrofula, diseased habit of body {	23	5	75	4	51	7	14	2	26	3	36	4	13	..	135	..
	..	..	..	..	..	..	9	..	23	..	31	..	18	..	86	..
	..	..	..	..	..	..	204	13	35	2	32	28	35	22	679	31
	..	..	..	..	..	..	17	..	23	..	30	3	33	..	896	65
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	238	25
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	103	3
<i>Diseases of the Nervous Functions.</i>																
Affecting the intellect {	5	..	..	..	1	..	9	..	2	..	2	..	7	..	26	..
Affecting sensation and motion {	13	..	9	1	15	2	9	..	14	..	11	..	14	..	3	..
	..	..	..	..	..	..	8	..	11	..	6	..	6	1	85	3
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	1
<i>Diseases of the Sexual Functions.</i>																
.. {	3	..	..	..	1	..	2	..	7	1	4	..	6	..	23	1
	..	..	..	..	..	..	..	..	..	..	2	..	1	..	3	..
<i>Diseases of the Functions of Absorption and Secretion.</i>																
Affecting the cellular tissue {	..	..	..	..	1	..	3	1	..	..	..	..	..	..	4	1
Affecting the internal and external surfaces {	2	..	6	..	7	2	2	1	1	..	2	..	1	..	3	..
	..	..	..	..	..	..	3	1	1	..	..	..	..	..	18	2
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	1
<i>Fractures, Dislocations, Wounds, Contusions, and other diseases not above included.</i>																
.. {	30	2	43	1	22	..	22	1	26	..	24	..	21	..	187	4
	..	..	..	..	..	..	13	..	22	..	36	..	15	1	87	1
<i>Blind, Aged, and Debilitatus.</i>																
.. {	..	..	4	..	2	..	8	..	9	1	12	..	21	1	55	2
	..	..	..	..	..	..	16	1	7	..	5	..	3	..	32	1
Totals {	438	21	396	20	217	16	550	7	245	13	322	13	261	19	2,429	109
	..	..	..	..	..	..	370	15	225	3	529	36	498	26	1,622	80
<i>Population.</i>																
.. {	1,284	..	1,388	..	1,341	..	1,188	..	1,205	..	1,041	..	850	..	..	..
	..	..	..	..	..	..	612	..	618	..	627	..	590	..	..	..

tendency in the constitutions of most of them. This is fostered by the salt-meat ration, to which they are confined. Excluding the bone, this is generally deficient in quantity for the support of labouring men, and it is not unfrequently of inferior quality also; and some of the most prevalent habits among prisoners, as smoking and concocting trashy messes to eat and drink, as well as some of their too frequent vices, and the depression and despondency which cannot but weigh at times on all

their minds, must be prejudicial. The balance is undoubtedly against them.) 6. The prevailing ailments have been fevers, inflammation of the bowels and other intestines, dysentery, and consumption. 7. Cases are generally numerous in proportion to population. Among the new prisoners they are one-half more numerous even than the population. 8. With the exception of consumption generally, and dysentery among the new prisoners, cures are also numerous in proportion to cases. The previously detailed circumstances appear sufficiently to explain both facts.

Of the 150 penal prisoners who have died since 1833, and the 80 new prisoners who have died since 1840, the following is a distribution according to their countries, age when first convicted, and at death, and length of time that they respectively survived their original convictions. I add, also, the proportion of deaths in the several classes to arrivals in the same classes. Some of the facts so brought out appear to me interesting:—

Age at First Conviction.	Number.	Country.				Average Age when originally Convicted.	Average Age at Death.	Years' Prisoners.
		English.	Irish.	Scotch.	Foreign.			
Under 20 . . . {	53	36	15	2	..	16 $\frac{1}{12}$	29 $\frac{2}{12}$	13 $\frac{1}{12}$
	14	9	5	..	..	18 $\frac{1}{12}$	21 $\frac{6}{12}$	3 $\frac{6}{12}$
20 to 25 . . . {	38	20	16	1	1	22 $\frac{6}{12}$	33	10 $\frac{3}{12}$
	22	14	6	1	1	22 $\frac{3}{12}$	25 $\frac{1}{12}$	2 $\frac{10}{12}$
25 to 30 . . . {	25	15	9	1	..	26	38 $\frac{2}{12}$	12 $\frac{7}{12}$
	10	4	5	..	1	26 $\frac{1}{12}$	29 $\frac{4}{12}$	3 $\frac{3}{12}$
30 to 35 . . . {	10	5	5	..	..	32 $\frac{2}{12}$	45 $\frac{6}{12}$	15 $\frac{6}{12}$
	12	7	4	1	..	31 $\frac{7}{12}$	34 $\frac{3}{12}$	2 $\frac{8}{12}$
35 to 40 . . . {	8	4	4	..	..	36 $\frac{7}{12}$	54	17 $\frac{1}{12}$
	11	8	3	..	..	37 $\frac{1}{12}$	40 $\frac{7}{12}$	3 $\frac{3}{12}$
40 and upwards . . {	16	8	8	..	..	50 $\frac{7}{12}$	69 $\frac{4}{12}$	18 $\frac{9}{12}$
	11	7	4	..	..	45 $\frac{7}{12}$	48 $\frac{10}{12}$	3 $\frac{3}{12}$
Total deaths . . {	150	93	57	4	1	25 $\frac{1}{12}$	38 $\frac{11}{12}$	13 $\frac{10}{12}$
	80	49	27	2	2	28 $\frac{9}{12}$	31 $\frac{9}{12}$	3
Total arrivals . . {	2,916	1,818	965	127	6			
	676	324	322	20	10			
Proportion of deaths to arrivals . . {	·051	·051	·059	·031	·16			
	·118	·151	·083	·1	·2			

1. Among the penal prisoners the total deaths are by this table about 5 per cent. of the total arrivals. The deaths among the English proper in the same class are to their arrivals in the same proportion. The Irish are above it, being rather more than 6 per cent., and the Scotch below, being under 4 per cent. 2. Among the new prisoners these proportions differ widely. The total deaths in this class are above 13 per cent. of the total arrivals. The English deaths are 16 per cent. of their arrivals, the Irish not more than 9 per cent., and the Scotch 10. 3. From this comparison may it not be inferred that the English constitution does not

stand a violent change of climate and diet so well as the Irish? In other words, it is likely to suffer more in all cases in seasoning than the other; but when seasoned, as originally the better fed, it is hardier and longer lived. The inference seems fair, but the premises are narrow. 4. Among the penal prisoners, above a third (53) of the whole number of deaths is of men convicted under 20 years. Diseased parentage, with early vice and irregularity in themselves, and early experience of the hardships and initiation into the vices and practices of a prison life, abundantly explain this. Yet the proportion of this class is under a sixth among the new prisoners, and is not quite a half, even including men convicted between 20 and 25. 5. On the other hand, a list of aged prisoners now here, or who have died here, which I have now before me, shows that nearly all were convicted late in life. Only one of them was convicted under 33; he was 22: and the average of the whole is $47\frac{2}{3}$. 6. The average value of life in a penal condition here ($38\frac{1}{2}$ years) is low; that was to be expected: but there is a remarkable agreement in the average periods that those convicted under 35 years of age have survived their conviction, that deserves notice. These are precisely the individuals who suffer most under the existing principles of prison management,—who are considered strongest to bear the inflictions directed by them,—whose wills are strongest and consequently most strongly pressed on by them,—and whose animal spirits are likely to carry them to the greatest lengths in resisting, evading, or solacing themselves under them by vicious indulgence. Does this combination of circumstances, then, constitute such an external pressure as to make the chance of life after conviction the same from 16 to 35 years of age, and reduce it to 11 years? I think it not improbable that something like this is the real effect; yet the facts here cited are too few entirely to confirm the inference.

In general the men here die very quietly and composedly, resigning themselves with little apparent reluctance to their fate, and receiving and applying, even the worst of them, to their own cases the consolations of religion with little apparent doubt or hesitation. There are exceptions,—men who die utterly obdurate and impenitent, and men who show great uneasiness about their future prospects; but the reverse is the rule: and it is, I think, much to be lamented. A more painful death in the case of very wicked men would be salutary to survivors, and probably more beneficial to themselves. The circumstance proceeds, I think, from two causes:—First, the ties of a prisoner to life are not strong, and his habits of enterprise reconcile him readily to any change; and secondly, the moral guilt of their several offences is very little felt by the body at large. They have for such a length of time looked to them as their only sources of indulgence and subsistence, that they have almost ceased to consider them as involving moral guilt at all. The degree in which I can trace this in the minds even of my best men is wonderful, and it proceeds, in a great degree, from the system of measuring sentences by time instead of by conduct. Conduct has thus no prominent value attached to it in their every-day life, and misconduct no directly injurious effect; while other circumstances also conspire. Men long kept without personal property, have little sympathy with the moral reasoning which would protect property; and where submissiveness is the only virtue

directly rewarded, the others speedily lose value by comparison. The precepts of religion in vain struggle with circumstances so unhappily combined. They are respectfully and attentively listened to. The demeanour of the men here in church would contrast advantageously with that of most free congregations, and their minds are thus prepared at the last to receive the consolations of religion with intelligence and faith. But meanwhile the moral maxims of religion are unheeded. The wheat is sown among so many tares, that it is unable to yield a crop; nor is there any view of prison management more interesting than this, or which exhibits existing evil more clearly, or points so unerringly to its remedy.

6. *Men killed accidentally.*—There have been in all 30 of these, of whom 2 have been new prisoners drowned fishing. The following Table gives all principal particulars regarding them:—

Accidents.	English.	Irish.	Scotch.	Average Age.	Years Prisoners.
Drowned on the Bar, on duty	3	2	..	34 $\frac{7}{12}$	7 $\frac{9}{12}$
Drowned fishing	6	5	..	29 $\frac{8}{12}$	9
Killed by falls of earth when cutting } banks	5	2	..	31 $\frac{1}{12}$	12
Killed by falls of trees	1	2	..	39	10
Killed by fall of bag of rations	1	..	..	21	9
Accidentally shot	1	..	..	30	11
Accidentally stabbed . . . . .	..	1	..	40	13
Died from effects of fighting . . . .	..	1	..	36	15
Totals	17	13	..	31 $\frac{9}{12}$	9 $\frac{11}{12}$

7. *Men murdered.*—There have been five of these, as under:—

Name and Year Murdered.	Age.	Country.	Education.	Remarks.
1830. A. Oliver .	30	I.	Not read	{ Cruel, vindictive overseer; killed by two men of his gang.
1833. J. Doolan	38	I.	„	{ Very bad man, and sent here for swearing to convict two innocent men of murder; killed, however, wantonly, without reference to this.
1833. P. Sullivan	44	I.	„	{ Harsh, cruel overseer; killed by two men of his gang.
1835. J. Dursley	28	E.	{ Read and write }	{ Good man, and overseer; killed for another overseer, whom a man, resolved to die, meant to murder, but could not find.
1842. P. Lynch .	25	I.	Read	{ Quiet, good man; most wantonly stabbed in a frivolous altercation.

Everything considered, this number appears to me very small.

8. *Men executed.*—The following is a list of these, with particulars:—

Name.	Age.			Sentence.		Offence on the Island for which Tried.	Religion and Country.	Education and General Intelligence.	Previous Occupation.	Date when Tried.
	When first Convicted.	When sent to the Island.	When Tried.	Original.	Colonial.					
J.M.D. (a)	20	23	27	Life	Life	Attempt to murder . .	I. C. {	Not read ; ignorant . .	Porter . . .	1832
T. R. . .	20	25	25	7 yrs.	„	Murder of J. Doolan	„ {	Not read . .	Soldier. . .	1833
J. R. . .	23	27	28	„	14 yrs.	Do. P. Sullivan . .	„ {	Read . . .	Tailor . . .	„
M. C. . .	23	32	34	„	„	Ditto . . .	„ {	Not read . .	Carpenter . .	„
J. B. (b) .	25	28	30	Life	„	Mutiny . .	E. P. {	Read & write ; very intelligent . .	Coachman .	1834
J. B. (b) .	23	28	28	7 yrs.	Life	Ditto . . .	„ {	Ditto . . .	Seaman & soldier . .	„
R. D. (b) .	29	45	46	„	„	Ditto . . .	S. Pres. {	Ignorant . .	Labourer . .	„
W. B. (b) .	25	27	28	Life	2 yrs.	Ditto . . .	I. C. {	Very ignorant	Herdsmen .	„
P. G. (b) .	23	27	28	7 yrs.	Life	Ditto . . .	„ {	Ditto . . .	Stableman .	„
H. D. (b) .	18	25	31	14 yrs.	„	Ditto . . .	E. P. {	Read & write	Weaver . .	„
J. S. (b) .	21	23	36	Life	„	Ditto . . .	„ {	Very ignorant	Brickmaker .	„
F. F. (b) .	19	25	26	„	„	Ditto . . .	„ {	Read & write	Labourer . .	„
R. R. (b) .	26	30	32	„	{ 7 yrs., Life and Life	Ditto . . .	„ {	Ditto . . .	Carpenter . .	„
W.M.C. (b)	17	31	32	„	Life	Ditto . . .	S. Pres. {	Not read . .	Coachman .	„
H. K. (b) .	22	25	28	14 yrs.	„	Ditto . . .	E. P. {	Read & write	Blacksmith .	„
M. A. (b) .	28	34	36	7 yrs.	14 yrs.	Ditto . . .	I. C. {	Ditto and intelligent . .	Labourer . .	„
W. G. (b) .	23	28	30	Life	Life	Ditto . . .	E. P. {	Read & write	Gardener . .	„
G. T. . .	22	24	25	7 yrs.	14 yrs.	Attempt to murder J. Fell . . .	„ {	Not read . .	Seaman . .	1835
J. B. . .	24	29	30	„	„	Murder of J. Dursley	„ {	Ditto, naturally intelligent . .	Weaver . .	„

(a) Tried in Sydney and executed on Norfolk Island.

(b) Executed for the mutiny, 1834.

Recapitulation.

Average Age.		Average Time Prisoner.	Original Sentences.			Country.			Education.				Original Occupation.				
At First Conviction.	At Death.		7 years.	14 years.	Life.	English.	Irish.	Scotch.	Read.	Not Read.	Write.	Not Write.	Mechanics.	Tradesmen.	Labourers.	Sailors.	Soldiers.
28 $\frac{8}{12}$	30 $\frac{9}{12}$	7 $\frac{4}{12}$	9	2	8	10	7	2	9	10	8	11	3	3	10	1	2

No fewer than 13 of these men having been executed for the mutiny here in January, 1834, while in a preceding table, of men sent to Sydney for trial, 4 were for murder of a soldier in that of 1826, some details regarding these acts seem here appropriate.—1. (1826.) The men at this time lived in huts, nor were barracks yet constructed for either them or the military. The latter were stockaded at two points—by the commissariat store close to the boat-harbour, and the commandant's house, about a quarter of a mile distant. Early in the morning of the 25th September the former of these stockades was surprised and carried with the loss of one corporal killed and two soldiers wounded ; and the

abler and more resolute prisoners then proposed to proceed to attack the other with the arms so obtained. But while they were urging this, the commissariat store was broken open, and rum being thus obtained, it soon appeared impossible to organize the men for such a purpose; while, on the other hand, the alarm being given, the commandant's detachment was seen turning out, and preparing to attack them. It was resolved, therefore, to take the boats and proceed to Philip Island, there to remain, and seize any vessel from it that might come in; and, had all the boats been so taken, the plan might have succeeded; but one was under repair at the time and unfit for immediate use, and the mutineers, instead of floating her off and sinking her in deep water, or otherwise completely destroying her, contented themselves with merely further damaging her; and in this boat, accordingly, patched up as was at the moment possible, they were pursued the following day by the commandant, Captain Donaldson, 57th regiment, in person. They made no effective resistance. They had intoxicated themselves over-night, and the charges in their pieces having got wet did not go off when they attempted to fire them. The boats were thus immediately recaptured, and 21 of the 50 men who had absconded in them were brought back. Two days afterwards more were got; and within a few weeks all were recovered excepting 18, who remained out several months. The last and longest out was a man named Story, who proved afterwards a quiet, orderly man, and as such has since returned to Sydney under the Act of Council.—2. (1834.) This mutiny was more deliberately planned than the other; and had it proved equally successful at the outset, the consequences might have been very serious. The commandant, Colonel Morisset, 3rd regiment, was ill in bed; an inferior officer temporarily commanded. The harbour guard was again to have been rushed; and it was arranged that the farm labourers, so soon as the tools were issued to them at Longridge, should hasten back to the settlement to aid in the contemplated attack. The whole attempt, however, failed in the beginning. The harbour guard successfully resisted the attack made on it. The officer temporarily in charge, Captain Foster Fyans, 4th regiment, promptly turned out his men, and directed a heavy fire on every body of prisoners he saw anywhere collected. The ring-leaders were thus speedily either wounded or killed; and in a few hours all was again quiet. Besides those sent to Sydney for trial there, 27 ring-leaders had heavy sentences in irons added to their other sentences on the island for the mutiny of 1826; and besides the 13 executed, 17 sentenced to death were respited, and had other sentences on the island for their share of that of 1834. The following table gives the chief particulars regarding both:—

Year.	Average Age.	Original Sentences.			Country.			Education.				Subsequent Fate.					
		7 years.	14 years.	Life.	English.	Irish.	Scotch.	Read.	Not Read.	Write.	Not Write.	Since gone to Sydney on indulgence.	Since absconded.	Since Executed for other Offences.	Since Died on the Island.	Since Shot on the Island.	Still Remains.
1826	36 ⁹ / ₁₂	8	5	14	18	7	2	21	6	12	15	20	3	1	1	..	2
1834	30 ¹ / ₁₂	10	3	4	9	8	.	13	4	5	12	13	..	1	..	2	1

9. *Men killed resisting lawful authority.*—In one sense, these may be considered as in the same predicament with men executed. Their offence was as complete, though, had it come to a judicial trial, it might not have terminated so fatally to them. There have been 17 of them, as follows:—

Name.	Age.			Sentence.		Religion & Country.	Education.	Previous Occupation.	Date when Killed.
	When first Convicted.	When sent to the Island.	At Death.	Original.	Colonial.				
J. L. (a) . .	23	24	25	Life	Life	E. P.	Read and write	Butcher . .	26 Sept., 1826
P. R. (b) . .	46	49	50	7 yrs.	,,	I. C.	Read	Labourer . .	28 Sept., 1826
J. D. (b) . .	21	34	35	,,	,,	,,	Not read . . .	Ditto	,,
P. C. (c) . .	26	30	30	Life	{ Life } C. R.	,,	Read	Farmer . . .	20 Oct., 1827
W. C. (d) . .	21	19	31	7 yrs.	14 yrs.	,,	Not read . . .	Labourer . .	1833
T. W. (e) . .	18	27	30	Life	Life	,,	Ditto	Groom	1834
W. C. (e) . .	32	33	36	,,	,,	,,	Ditto	Mariner . . .	,,
G. W. (e) . .	20	32	34	7 yrs.	3 yrs.	E. P.	Read and write	Ditto	,,
R. M. (e) . .	32	39	40	,,	Life	,,	Ditto, clever . .	Master, R.N.	,,
D. M'C. (e) .	21	23	24	,,	14 yrs.	I. C.	Not read . . .	Groom	,,
J. B. (e) . .	20	26	28	,,	,,	,,	Read and write	{ Baker and } Sawyer . }	1835
W. S. (f) . .	15	23	28	,,	,,	,,	Ditto	Labourer . .	1836
B. K. (g) . .	18	29	28	,,	Life	,,	Ditto	Ditto	1842
G. M. (g) . .	18	27	30	Life	,,	E. Jew.	Ditto	Waterman . .	,,
W. M'L. (g) .	16	24	23	,,	,,	S. Pres.	Ditto	Mariner . . .	,,
S. J. (g) . .	12	15	23	14 yrs.	,,	E. P.	Uneducated . .	Baker's boy .	,,
J. S. (g) . .	20	37	40	Life	,,	,,	Not read; naturally clever.	{ } Labourer . }	,,

(a) Shot when crossing the Bar, going to Philip Island.

(b) Shot on Philip Island.

(c) Shot when an absentee.

(d) Shot when crossing the Bar taking a boat.

(e) Shot in the mutiny, 1834.

(f) Stabbed when an absentee.

(g) Shot at the piratical seizure of the Government brig "Governor Philip," June, 1842.

Recapitulation.

Age.		Time.	Original Sentence.			Country.			Education.				Previous Occupation.				
At first Conviction.	At Death.		7 years.	14 years.	Life.	English.	Irish.	Scotch.	Read.	Not Read.	Write.	Not Write.	Mechanic.	Tradesman.	Labourer.	Sailor.	Soldier.
29 $\frac{4}{12}$	31 $\frac{9}{12}$	9 $\frac{5}{12}$	9	1	7	6	10	1	10	7	7	10	1	..	11	5	..

10. *Suicides.*—Considering the history of this place, and frequent attempts at self-destruction made in all similar establishments, it is somewhat remarkable that there are here only two successful instances of it on the records. Even the most desperate in early times appear to have shrunk from it; and when weary of their lives, rather took another to be hanged than hanged themselves. Instances of this, or of its appearance at least, have been given in the reports concerning all penal stations; and expressions threatening it rise readily to the lips of irritated prisoners, partly, I have little doubt, in momentary purpose; but it is not in general to be feared where thus threatened.

The two unhappy men who accomplished the act here were in very different circumstances. One was an absconder to Philip Island in 1826, who, being pursued by the military to a cliff overhanging the sea, and having no means of escape, deliberately drew his frock over his head, and, plunging down, was dashed to pieces. Neither the body nor any fragment of it was ever found. The other was a man named Lockage, who had been transported in 1819 for forgery, and lived some years afterwards in Sydney with his wife, a very pretty woman, to whom he was much attached. Being of good education (it is said, previously a lawyer), he had many other indulgences also, as was usual in that day; but, abusing these (as he alleged under the influence of jealousy), he was very grossly disrespectful to some of the officers placed over him, and was sent here in 1828 under a three years' sentence. He was, however, only three months on the island, always in a state of the deepest dejection, and succeeded at last in hanging himself. He was much regretted among the men, and the sympathy expressed for him even yet among the older prisoners who knew him is remarkable.

11. *Bond population on the island on the 31st December in each year.*—Under this head I propose to give some more minute information regarding the men now or very recently on the island than could be furnished regarding all the arrivals. The general composition of the whole may be inferred from that of this portion.

On the 1st September last (when I began to collect these returns) the composition of 796 penal prisoners on the island is shown in the following tables:—

TABLE I.

Country.				Religion.			Age when First Convicted.							Age now.						
England.	Ireland.	Scotland.	Foreign.	Protestant.	Catholic.	Jew.	Under 15.	15 to 20.	20-30.	30-40.	40-50.	50-60.	Above 60.	20 to 30.	30-40.	40-50.	50-60.	60-70.	70-80.	Above 80.
411	358	19	8	447	344	5	15	180	410	136	39	8	2	155	372	172	67	20	9	1

TABLE II.

Periods on the Island.				Periods when First Convicted.										Married or Single.			Education.			
2½ to 5.	5-10.	10-15.	Above 15.	4 to 10.	10-15.	15-20.	20-25.	25-30.	30-35.	35-40.	40-45.	Above 45.	Arrived Free.	Married at Home.	Married in Colonies.	Unmarried.	Can Read.	Cannot Read.	Can Write.	Cannot Write.
564	219	11	2	286	277	128	68	20	..	2	..	13	72	72	89	635	546	250	403	393

TABLE III.

Where First Tried.										By what Courts.			Original Offences.				Original Sentences.		
London and Middlesex.	Lincolnshire.	Rest of Eng-land.	Dublin.	Cork.	Rest of Ire-land.	Edinburgh.	Glasgow.	Rest of Scot-land.	Colonies.	Supreme Court.	Quarter Ses-sions.	Court Martial.	Against Person.	Against Pro-erty with Violence.	Against Pro-erty without Violence.	Against State.	7 years.	10 to 21.	Life.
102	67	322	54	27	160	6	11	11	23	584	171	28	28	278	426	57	378	120	271

TABLE IV.

Colonial Offences.				Colonial Sentences.					
Against Per-son.	Against Pro-erty with Violence.	Against Pro-erty without Violence.	State.	7 years.	10 to 21.	Life.	Life in Chains.	Life in Chains. Capital Re-spite.	Life, never to return.
86	240	371	99	110	363	235	31	21	34

In Table I. the most interesting column is that showing the age at which the men were severally first convicted. A large proportion appear to have been then very young, and the following details showing the age at which the men have incurred their several original sentences throughout may be found interesting :—

Sentences.	AGE.											Total.
	10—15	15—20	20—25	25—30	30—35	35—40	40—45	45—50	50—55	55—60	Above 60	
7 years . .	6	114	118	70	38	28	12	6	2	..	2	396
10 „ . .	..	..	1	2	1	1	..	..	..	..	..	5
14 „ . .	2	23	36	24	8	9	..	2	..	..	..	104
15 „ . .	..	..	1	1	2	..	..	..	..	..	..	4
21 „ . .	..	..	1	..	..	..	..	..	..	..	..	1
Life . .	7	43	92	62	32	18	13	3	3	..	..	273
Arrived free .	..	..	3	1	1	2	1	2	1	2	..	13
Totals .	15	180	252	160	82	58	26	13	6	2	2	796

The following are particulars regarding the 15 men in the first of these columns, showing their original and colonial sentences, and ages at first and second conviction :—

No.	Original Offence.	Sentence.	Colonial Offence.	Sentence.	Age at First Conviction.	Age at Second Conviction.
1	Robbing master . .	7 years	Present, aiding, &c.	Life . .	13	18
2	Stealing instruments	„	Burglary . . .	„	12	20
3	Stealing harness .	„	{ Bush-ranging and robbery . . . }	„	10	22
4	Stealing boots . .	„	Highway robbery .	{ Life, not to return }	12	19
5	Stealing handkerchiefs	„	Burglary . . .	{ Life in chains, Cap. Res. }	14	19
6	Housebreaking . .	„	Burglary . . .	Life . .	12	18
7	Larceny	4 years	Horse stealing . .	„	14	20
8	Stealing watch . .	14 years	Felony	{ Life, never to return }	14	21
9	Arson	Life	Killing cattle . .	Life . .	14	26
10	Horse stealing . .	„	Burglary	„	14	25
11	Picking pockets .	„	At large with fire-arms	7 years .	14	24
12	Picking pockets .	„	Highway robbery .	{ Life, in chains. }	13	19
13	Street robbery . .	„	Cattle stealing . .	15 years .	13	25
14	Housebreaking . .	„	At large with fire-arms	Life . .	13	18
15	Housebreaking . .	„	Robbery with violence	{ 7 years' and Life }	14	28

A melancholy precocity of crime and early experience of its fruits, which will be set more clearly in view by the following tabular analysis of the second column also, viz., of men convicted from 15 to 20. Their age at second conviction and second sentences are here given:—

Age at Second Conviction.									Second Sentences.						Total.
17 years.	18.	19.	20.	21.	23.	24.	24 to 30.	Above 30.	7 years.	10 to 21.	Life.	Life in Chains.	Life in Chains. Capital Re- spite.	Life, never to return.	
5	19	30	34	27	6	14	23	22	20	92	46	7	6	9	180

Almost two-thirds re-convicted under 22 years of age, and with such sentences additional in all cases to those under which they were sent to New South Wales recorded against them. "*Facilis descensus Averno!*" May not the small number shown in this table, however, re-convicted between the ages of 21 and 24 be held to indicate a hesitation on first attaining the years of manhood and discretion to plunge into a life of confirmed vice and crime, which, if watched in individual cases, might be turned to profit? One would fain catch at even the slightest hint in the difficult art of recovering young offenders.

In Table II. it is worth observing that almost two-thirds of the entire number (796) have been above 10 years prisoners, and between a third and fourth have been above 5 years on Norfolk Island. The proportion of married, and consequently of suffering families, is above a fifth. The

number of educated may appear remarkable; but from the facts before me on this island, I am not inclined to consider prisoners generally ignorant of the first elements of education. The degree in which they possess them is low. Among all the men here who can read and write, not above a dozen could really act as clerks, and we are often inconvenienced in consequence. But sufficient writing to discharge the ordinary duties of an overseer, or in some way to take an account of work, is common; and this power, as also that of reading a newspaper or amusing book, where not originally possessed, is generally eagerly sought. It is not power, but principle, that is really wanted among them.

The following tables give a nearly similar return of 586 new prisoners on the island at the same time. Fewer particulars, however, require to be included in these. The men are all about five years convicted, and nearly four on this island; 29 of them are known to be old prisoners re-convicted, but are not so stated in our books, and thus only their last offences and sentences appear against them; 46 are soldiers from India and other colonies:—

Country.				Religion.			Age when Convicted.										
English.	Irish.	Scotch.	Foreign.	Protestant.	Catholic.	Jew.	Under 16.	16 to 20.	20-25.	25-30.	30-35.	35-40.	40-45.	45-50.	50-55.	55-60.	Above 60.
288	277	12	9	302	283	1	2	112	226	111	59	32	24	13	4	2	1

Married.	Children left behind.		Not Married.	Education.				Where First Tried.									
	Male.	Female.		Can Read.	Cannot Read.	Can Write.	Cannot Write.	London and Middlesex.	Leicestershire.	Rest of England.	Dublin.	Limerick.	Rest of Ireland.	Edinburgh.	Glasgow.	Rest of Scotland.	Colonies.
163	202	226	423	303	283	212	374	49	16	178	62	38	173	3	8	6	53

By what Courts Tried.			Offences.				Sentences.		
Supreme Court.	Quarter Sessions.	Court Martial.	Against Person.	Against Property with Violence.	Against Property without Violence.	State.	7 years.	10 to 21.	Life.
411	132	43	57	129	347	53	284	240	62

The following observations occur on these tables:—1. The number of young convicts is again very great; 2 are under 16, having been convicted at 14 and 15 respectively, while 112 more are under 20. 2. If it be, as above surmised, that when an early conviction has taken place, a hesitation is felt, after attaining years of discretion, before plunging

still deeper into crime and misfortune, no such hesitation appears where there has been no such warning ; for, on the contrary, the greatest number of all, 226, appears here to have been convicted between 20 and 25 ; and on a further analysis I find the proportion to stand thus—48 convicted at 20, 52 at 21, 59 at 22, 39 at 23, and 28 at 24. 3. The number of married and of families thus left destitute appears among this body of men excessive ; out of a total of 586, 163 husbands have left 428 children (73 per cent. of the entire number of men at this time transported) to deplore, probably through life, the influence of their parents' vices on their after destinies. 4. I have a nominal list of these married men, with their wishes in regard to their families, as taken from their own mouths, and observations in regard to them which seem to me worthy attention ; but here I place only the numerical results. 75 are English, 84 Irish, and 4 Scotch. Of the first, 52 wish to return to their families at home at the expiration of their several sentences, 20 desire to have their families sent out to them, and 4, the wisest, prefer to see what is likely to be their fortune in Van Dieman's Land before deciding. Of the second, the Irish, 51 desire to return, 30 to have their families sent to them, and 3 to wait before deciding. Of the last, the Scotch, 3 desire to return home and 1 only to settle in the colonies. These numbers do not speak highly of the pleasures of even the most genial climate and mildest form of transportation to which these men have as yet alone been subjected. 5. The married men have been generally well conducted, and, in particular, have only in very rare instances been suspected of unnatural offence ; yet nearly the worst two of the whole number (though not in this latter way) have been of this class. 6. It is remarkable that amidst all the mortality among these English prisoners (80 deaths in four years), only 3 married have died, who are thus not included in this list. Many circumstances which have come under my observation here, and this among the number, make me think that warm affections, extended to distant objects, thus drawing off the mind from present hardships, and probably at times filling it with pleasing thoughts, contribute to sustain life ; and if this observation, otherwise extremely probable, be correct, it is gratifying to think that the feelings most impartially distributed in life, and which most beautify and adorn it, contribute also to its preservation, while a provision is thus also made, by which in cases of epidemic the most valuable lives are preserved. 7. The proportion of educated in these tables is smaller than that among the older prisoners, which may be partly accounted for by the great mortality among them, 72 of those who died having been able to read, and 56 to write also. In a separate report on the epidemics that have twice prevailed among us (transmitted last year), I considered this fact as, among others, showing that deficient nourishment, which would first affect the originally best fed, was a principal cause of the disease ; and I still retain this opinion. 8. The degree of education among these English prisoners is, however, higher than among the old ones. When they read or write at all, they do both better than the others. Their minds are also generally more active and educable ; they covet a better class of books, and more readily acquire general, though superficial, information from them. It would appear as though the spirit of advancing intelligence in the age has touched, even where it has not directly seized on particular individuals. I have

never known a voluntary adult school so generally, and at the same time, for the most part, so profitably attended, as was ours at Longridge, till the formation of the establishment at Cascade, and the distribution of the men holding tickets of leave into farms, unavoidably broke it up. The desultory information now afloat among the lower classes in England seems thus to prepare the minds of the young for the reception of more correct information, and thus to improve them, even when the latter is not imparted; and perhaps this is the most interesting point of view in which this information can be regarded.

On the other hand, I am sorry to add, that these same young English prisoners, who are thus distinguished among us for superior education and educability, are not less remarkable for indifference to their religious duties and careless reception of religious instruction. In both particulars it is curious to say that they not unfrequently even give offence to the older hands. Whatever the cause, the older prisoners, without being always the better men for it, are peculiarly accessible to religious exhortation and impression, and show much respect to religious addresses. They thus come readily to church, they listen with extreme attention to any sermon in the least suited to them, and they are frequently even deeply moved by one bearing on their individual circumstances. Is it that religious exhortation, being the only form in which persuasion is familiarly addressed to them, is, in proportion, grateful to their feelings? Or because in this form only they are considered as equals of their fellow-men? Or because their intellects otherwise crave occupation, and this supplies it? Or are their minds thus cast back on their young days, and made agreeably to recognise accents familiar to them when young, and comparatively innocent and happy? Or does conscience love to be stimulated, even when its dictates are systematically disobeyed? Or does a secret hope always exist, that while the voice of admonition is heard and attended to, it may some day prove efficient, and that there is thus safety in listening to it? I do not pretend to analyze the whole *modus operandi*, but the effect is certain; and I have frequently seen even very bad men exhibit considerable religious sensibility, not hypocritically or ostentatiously, but striving to conceal it, and perhaps the first afterwards to laugh at it, to escape the jeers of, at the moment, their less sensitive companions. But as a class, the young English prisoners exhibit here appearances almost the reverse of these. They come unwillingly to church; they not unfrequently misconduct themselves there. I have had occasion to sentence many to sit for different periods on the front benches, immediately in my own view; and several even have been brought before me by their better-minded companions for arguing that religion was a hoax, supported by the better classes in order to control the lower.

The following list shows the offences, original and colonial, for which both classes are here. The second row of figures against each offence, as in former tables, exhibits the English prisoners. There are 13 more offenders in the column of colonial prisoners than there are first convicts in the same class. This arises from 13 men under colonial convictions having come out free, notwithstanding which, having arrived before I came, and before there was any specific class of first-convicted men on the island, they have always here been considered and treated as penal prisoners:—

OFFENCES.	Original.										Colonial.											
	Age at First Conviction.						Country.				Age at Second Conviction.						Country.	Total.				
	Under 20.	20—30.	30—40.	40—50.	50—60.	Above 60.	English.	Irish.	Scotch.	Foreign.	Total.	Under 20.	20—30.	30—40.	40—50.	50—60.	Above 60.		English.	Irish.	Scotch.	Foreign.
Assault, common	2	4	1	1	1	1	2	4	1	2	4	1	1	1	1	1	1	1	1	1	1	1
—, aggravated	13	1	1	1	1	1	14	4	1	1	14	1	1	1	1	1	1	1	1	1	1	1
— with fire-arms	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
— and felony	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
— with intent to murder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
— with intent to do bodily harm	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
— and robbery	1	3	1	2	1	1	1	4	2	1	3	3	3	4	1	1	1	3	1	1	1	1
— with intent to rape	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
— on dwelling-house	1	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
Attempt to murder	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
— to murder and steal	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Bigamy	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Carnally knowing a child	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cutting and maiming	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Offences against Person.

Offences against Person.	{	— with intent to murder	7	19	1	1	18	..	10	3	39	25	13	4	2	50	31	4	1	86	..	
			5	44	11	6	..	56	1	9	..	..	..	..	..	..	..	..	..	..	..	..
{	{	Manslaughter	2	4	8	2	..	3	1	3	12	3	..	..	..	12	5	..	..	18	3	
			1	1	1	1	..	4	..	..	..	..	2	1	..	..	3	4	..	..	7	..
{	{	Murder	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	
		
{	{	—, accessory to	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		
{	{	— and highway robbery	..	..	..	..	..	..	..	..	3	..	..	..	..	2	1	..	..	..	..
			..	..	..	..	..	..	..	..	..	..	2	1	..	..	3	4	..	..	7	..
{	{	Rape	3	4	..	..	..	1	1	1	2	1	3	..	..	3	..	..	..	..	..
			..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
{	{	Shooting	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		
{	{	— a man	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		
{	{	— with intent to kill	..	1	3	..	..	3	..	2	1	1	..	..	..	..	..	..	..	..	..
		
{	{	Stealing a child	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..
		
{	{	Sodomy	..	2	2	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..
			1	2	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
{	{	Stabbing	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		
{	{	— with intent, &c.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		
{	{	— and receiving	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		
{	{	Threatening notice	..	2	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..
		
{	{	Wounding with intent to kill	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		
{	{	— with intent to do bodily harm	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
		
Totals		..	7	19	1	1	1	18	..	10	3	39	25	13	4	2	50	31	4	1	86	..

OFFENCES.	Original.										Colonial.					
	Age at First Conviction.					Country.					Age at Second Conviction.					Total.
	Under 20.	20—30.	30—40.	40—50.	50—60.	Above 60.	English.	Irish.	Scotch.	Foreign.	Total.	English.	Irish.	Scotch.	Foreign.	
Arson	1	1	2	..	..	..	1	1	..	..	..	..	..	..	..	3
Breaking into cellar . . .	1	..	..	..	..	..	1	5	..	..	..	..	..	..	..	..
— into coach-office . . .	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..
— into shop . . . . .	..	1	..	..	..	..	2	..	..	..	..	..	..	1	..	..
— into warehouse . . . .	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	1
— out of watch-house and robbing keeper	11	19	7	..	1	..	27	10	1	..	38	29	15	2	1	47
Burglary	8	51	9	3	..	..	54	13	3	1	71	3	..	..	..	3
— and illegally at large .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
— and robbery . . . . .	..	1	1	..	..	..	1	1	..	..	2	..	..	..	..	..
— and shooting with intent	..	3	..	..	..	..	3	..	..	..	6	1	..	..	..	1
Bush-ranging . . . . .	..	..	..	..	..	..	..	..	..	..	..	7	8	..	..	10
— and attempt to murder .	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
— and highway robbery .	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2
— with fire-arms . . . .	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1

Offences against Property with Violence.

[illegible]

(continued)

OFFENCES.	Original.										Colonial.												
	Age at First Conviction.						Country.				Age at Second Conviction.						Country.						
	Under 20	20—30.	30—40.	40—50.	50—60.	Above 60.	Englsh.	Irish.	Scotch.	Foreign.	Total.	Under 20.	20—30.	30—40.	40—50.	50—60.	Above 60.	Englsh.	Irish.	Scotch.	Foreign.	Total.	
OFFENCES.	Robbery from shop	1	2	..	..	..	3	..	..	..	3	16	131	65	22	3	4	146	82	9	4	241	..
	— from store	1	2	..	..	..	3	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..
	— in street	7	9	1	..	..	11	5	..	..	16	..	..	..	..	..	..	..	..	..	..	..	..
	— with violence	..	5	..	..	..	5	..	..	..	5	..	..	4	2	..	..	3	4	..	..	..	7
	Sacrilege	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Stealing in dwelling-house,	2	2	1	..	..	1	2	..	..	5	..	2	..	..	..	..	1	1	..	..	..	2
	with violence	..	..	..	..	..	..	..	..	..	..	..	16	3	3	1	1	14	10	1	..	..	25
	—, and putting in fear	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
	Totals	94	137	36	5	2	205	37	12	274	3	16	131	65	22	3	4	146	82	9	4	241	..
	16	113	22	5	..	..	111	41	3	1	156	..	..	..	..	..	..	..	..	..	..	..	..
Offences against Property without Violence.	Base coin	1	1	..	1	..	2	1	..	..	2	4	37	40	27	8	5	68	45	8	..	..	121
	Cattle stealing	3	11	6	1	..	2	19	1	..	21	..	..	..	..	..	..	..	..	..	..	..	..
	— killing	..	16	6	4	..	5	20	..	..	26	..	..	1	1	..	..	9	5	..	..	..	14
	Defrauding master	..	2	1	..	..	1	2	..	..	3	..	2	2	..	..	..	..	..	..	..	..	..
	Embezzlement	..	1	..	..	..	1	1	1	..	1	..	..	1	..	..	..	..	..	..	..	..	..
	..	1	1	..	..	..	2	..	..	..	2	..	..	..	2	..	..	3	1	..	..	..	4

Offences against Property without Violence.	1	2	5	1	2	3	6	145	11	6	427	11	144	111	68	25	11	235	120	14	1	370
Forgery	1	2	5	1	2	3	2	145	11	6	427	11	144	111	68	25	11	235	120	14	1	370
Felony	5	7	1	1	2	1	1	10	3	13	5	17	12	18	15	7	1	26	6	1	1	23
Fraudulently passing a cheque	8	14	7	2	2	2	2	11	20	31	14	12	12	18	15	7	1	26	6	1	1	53
Horse stealing	1	8	6	1	1	1	1	5	9	14	1	1	1	1	1	1	1	1	1	1	1	1
— and house robbery	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Horse maliciously killed	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Larceny, grand	26	22	7	2	2	2	2	9	45	57	28	7	16	2	1	1	1	8	3	1	1	11
—, petty	88	84	6	1	1	1	1	63	128	199	199	2	16	16	5	3	1	31	11	1	1	43
Obtaining goods under false pretences	25	67	23	9	2	2	1	67	54	127	3	1	1	3	2	1	1	5	3	1	1	8
Picking pockets	22	6	3	1	1	1	1	11	20	31	7	1	1	1	1	1	1	1	1	1	1	1
Possessing	1	3	1	1	1	1	1	5	4	5	5	11	9	8	4	1	1	17	5	1	1	22
Receiving	4	5	3	1	1	1	1	3	9	13	13	9	9	8	4	1	1	17	5	1	1	22
Sheep stealing	3	12	6	1	1	1	1	17	6	23	23	20	20	7	3	1	1	28	3	3	1	34
Sheep killing	5	25	9	4	2	2	2	23	22	45	45	6	6	3	3	1	1	6	3	1	1	9
Shoplifting	7	2	1	1	1	1	1	10	1	11	11	1	1	1	1	1	1	1	1	1	1	1
Uttering	1	2	2	1	1	1	1	4	1	5	5	1	1	1	1	1	1	3	1	1	1	3
Totals	170	177	62	13	3	6	2	265	145	6	427	11	144	111	68	25	11	235	120	14	1	370

1. The first point of note in this table is the great proportion and aggravated character of offences against the person among the new, as compared with the old prisoners. This may be accidental, but it coincides with an opinion which I have other grounds for entertaining, viz., that in existing circumstances men transported for slight offences have a worse chance of behaving well in the penal colonies, and thus escaping further conviction, than the men who have committed greater original crimes. This may be explained in two or three ways, and is intelligible in them all. A man who has committed a great offence in his youth may be partly shocked, partly penitent on account of it, and may thus resolve earnestly to behave better in future; and, which is of still greater importance, he can afford to do so without losing caste among his companions. In the present unhappy tendency among prisoners to proceed from bad to worse, not to have committed some great offence is often considered to indicate a want of spirit. An original minor offender is thus under a temptation (the strength of which no one can estimate who does not know his class well) to hazard gross misconduct to avoid being looked down upon; and hence the penal settlements have a disproportionate number in them of this class, and the original sentences of men under second convictions to them are comparatively light. There can be no doubt that these circumstances are connected with very many acts of continued, and thus progressive, wickedness among young transports, and their influence is aggravated by the presumption of youth and inexperience, and by the liability of both to be duped and thrust forward into danger and detection by the older and craftier prisoners who may league with them. 2. The next point of interest in the table is the youth of very many convicts in both classes for the offences of burglary, house-breaking, and even highway robbery. The first two are intelligible, but not the last. 3. The great preponderance of English over Irish in these same offences is also remarkable. 4. In crimes of personal violence, on the contrary, unconnected with property, the Irish predominate; 15 cases of manslaughter, 6 of rape, 15 of aggravated assault, and 7 of murder, are from that country, to only 6 in all guilty of these offences among the English. 5. The Scotch are low in these, and in crimes against property with violence; but their proportion is high in crimes against property without violence. Other observations will occur on a minute consideration of the tables; but these are, I think, the most important.

At three several times, viz., December, 1841, December, 1842, and September of this present year, 1843, I have taken a detailed account of the united age of the two classes, and of the average of years thus assignable to each; and though the result of this is not of much value as regards a community of this description, which fluctuates both in number and age irrespective of death, and through circumstances entirely foreign to itself, yet as giving a general idea of the relative standing of the two classes, it may be interesting. At the first of these periods, then, the united ages of 1173 old prisoners amounted to 40,427 years, which, taking the average in every 10 years separately, gave as a common average $34\frac{1}{2}$. At the second period, the ages of 966 of the same class amounted to 32,989 years, which, similarly distributed, gave a common average of $34\frac{1}{2}$ years; and at the third period, the joint ages of the 796 men now on the island amounted to 30,061 years, which gave an average of

37 $\frac{3}{4}$. This remarkable rise was owing to a number of young men having just before been forwarded to Sydney on indulgence. The average ages of the new prisoners at the same periods were 27 $\frac{1}{4}$, 29 $\frac{1}{4}$, and 30 $\frac{1}{4}$. This rapid rise with them is attributable to the disproportionate loss of young life in the last epidemic.

But though the old prisoners are thus the older men, and in a considerably greater degree older looking, they are yet for present purposes the more efficient body. They owe this partly to their better state of health, partly to their better acquaintance with colonial labour, which makes their strength, as it were, go further. According to a medical report made to me for insertion here, 645 of their number (796) are considered by the surgeon effective, 110 more are moderately effective, and only 41 are quite inefficient. Of 576 new prisoners, on the contrary, only 374 are effective, 146 moderately effective, and no fewer than 56 are considered altogether useless. On the other hand, there can be little doubt that for ulterior purposes the new are the superior body. With a change of climate, and still more of diet, many will, probably, recover their health, while the older prisoners, on the contrary, being already well used up and long accustomed to a warm climate, will more probably sink under a change to Van Dieman's Land. Among the new, moreover, there is a larger proportion of useful tradesmen (carpenters, bricklayers, sawyers, blacksmiths, butchers, bakers, tailors, shoemakers, &c.) than among the old. From the general educability of the body the original number of these has much increased even here, and with a stronger stimulus it will probably increase still more in Van Dieman's Land. They are generally much more prudent and calculating than the older prisoners. Imperfect as the application of the mark and ticket-of-leave system has been to them, yet the qualified possession of what has been, within its limits, money and property to them, has had its natural effects on them. They do not, in general, surrender everything to a passing impulse, as is too common among the older prisoners.

Of the two classes, as may naturally be supposed, the English prisoners are the better looking. The lines of care, sorrow, and hardened guilt, are less deeply carved on them, and in some of the younger men there is even a peculiar springiness of gait, indicating, as I think, combined intelligence and hopefulness, such as I have not seen elsewhere in any prisoners. On the other hand, the whole body are comparatively slovenly and careless in their dress, and in this respect are much excelled by the older prisoners. I think that the climate has much to do with this. The old prisoners, accustomed to the heats of New South Wales, do not find the temperature here excessive, while the English prisoners are universally relaxed by it; and the severity and character of the disease (dysentery) under which they have almost universally laboured, have probably further tended to impair their attention to personal neatness and cleanliness. They are deficient also in economy in regard to their clothing, which thus does not last them nearly so long as it should do. There are exceptions; but the majority have given much trouble in these respects.

On the Population and Mortality of Calcutta. By LIEUT.-COLONEL
W. H. SYKES, F.R.S.

[*Read before the Statistical Section of the British Association at York,
September 26th, 1844.*]

THE following paper is derived chiefly from a Report to the Government of Bengal by Dr. Strong, the civil surgeon of the Twenty-four Pergunnahs, and partly from Mr. Griffith Davies's Report on the State of the Bengal Military Fund; the basis on which the per centages are struck is a census* of the population of Calcutta, prepared by Capt. Birch, superintendent of police, in 1837, composed as follows:—

Population of the City of Calcutta.

—	Males.	Females.	—	Males.	Females.
English . . .	1,953	1,185	Chinese . . .	243	119
Eurasians . . .	2,950	1,796	Madrassies . . .	30	25
Portuguese . . .	1,715	1,475	Native Christians.	30	19
French	101	59	Hindoos	85,145	52,506
Armenians . . .	465	171	Mahomedans . . .	38,934	19,810
Jews	185	122	Low Castes . . .	12,074	7,010
Moguls	314	195			
Parsees	32	8		144,893	84,812
Arabs	272	79			
Mugs	450	233	Total	229,705	

Setting aside all question of religious persuasion, it may thus be said that the population of Calcutta is made up of nearly 16 nations; for though the Moguls and Arabs are Mahomedans like the Mahomedans of Calcutta, they are from widely separated parts of the East; and though the Eurasians, or half castes, are the descendants of Europeans, they are necessarily a distinct people. The low castes, although natives of Calcutta, are separated by such wide religious and moral barriers from the rest of the community, that they also must be looked upon as a distinct people. Few cities, therefore, can exhibit such heterogeneous constituents as Calcutta, the remarks probably applying equally to the other Presidencies of India.

One anomalous feature in the census of Calcutta cannot fail to strike the eye of the statistician, and that is, the singular disproportion of the sexes, not only in the European population, but in every other class whatever. Amongst the English and French, and probably also amongst

* *Note by the Superintendent of Police.*—This census took a period of eight months in perfecting, and was subjected to several tests at the time, and has since been confirmed by a register of births and deaths for one year. The proportion of deaths to population being, according to the census, 3·13 per cent. per annum nearly; that of London is 2·16; which, allowing for difference of climate, is strongly confirmatory of the correctness of the census.

the Armenians and Chinese, this disproportion might be accounted for by the fact that they are only sojourners in a foreign land, and the great majority have not their families with them. But this argument will not apply to the Portuguese and half castes who are natives of the soil, and amongst whom the ordinary law regulating the relative proportions of the sexes should prevail. It might be said that the extreme reserve of the Mahomedans on the subject of their females might induce them to conceal the real numbers of their women; but this does not apply to the mass of the Hindoos, and least of all to the low castes, who have not any reserve at all in the matter. I must unhesitatingly declare that the census is not at all in accordance with the census I myself effected in the Deccan, which included $3\frac{1}{4}$ millions of souls, giving an average of 100 males to 94 females in the Poona collectorate, and 100 males to 98 females in the Dharwarr collectorate; and even in some towns the females exceeded the males, as in Bagulkoto, 100 males to 101·25 females, and in Gunness Pait, 100 males to 101·14 females, while in Calcutta, among the Hindoos, the males were 100 to 61·6 females, and among the Mahomedans 100 males to 50·8 females only.

Although the perverted will of man may, under certain circumstances, frustrate the perfect development of the ordinary laws of nature, as in the case of the Rajpoot populations of Kattywar and Cutch, yet it cannot be believed that in Calcutta any means whatever can be had recourse to to interrupt natural laws; either, therefore, the census is imperfect, or a physical fact exists of a most extraordinary and anomalous character, and in either case the matter calls for the careful consideration of the legislator and the philosopher.

The present table is auxiliary to the preceding, and shows the distribution of the population in the different districts of the suburbs, without distinguishing the sexes. It calls for no other than the passing remark, that it relates to the suburbs of Calcutta.

Census of the Population in the Suburbs of Calcutta.

Names of Thannahs.	No. of Villages.	No. of Mehals.	Resident Hindu Adults.	Hindu Children.	No. of Hindus in Service.	Resident Mussulman Adults.	Mussulman Children.	No. of Mussulmans in Service.	Native Lodgers or Passengers.	European Adults.	European Children.	East Indian Adults.	East Indian Children.	Total Inhabitants.
Thannah Sulkeah .	132	253	33,223	20,342	*8,106	12,154	4,395	*2,019	3,153	43	24	63	49	73,446
Ditto Chitpore . .	8	33	14,177	5,286	984	1,627	601	199	875	23	7	53	1	22,650
Ditto Manicktulah .	31	42	20,627	6,173	30,100	13,201	9,661	3,098	3,883	441	67	759	123	54,935
Ditto Tauzeeraut . .	29	84	22,032	5,349	1,120	8,601	2,755	647	5,072	54	15	45	27	43,950
Ditto Nowhazaree .	1	28	8,465	2,689	799	5,845	2,214	987	2,818	63	3	50	65	22,212
Grand Total														217,193

* The columns are not included in that of the Total.

The following table, on Dr. Strong's authority, exhibits the deaths monthly amongst the native population for a period of 11 years, the year

1831 being struck out as imperfect. In Europe it is found that the mortality follows very nearly the annual curve of temperature, the deaths being greatest in the winter months and least in the summer months. To this there is a singular exception, Dr. Alison finding that the maximum of deaths occurs in the month of April. The following table manifests the operation of the same law within the tropics, even to the exception. The annual average of deaths is 11.075: while the coldest months in the year—November, December, January, February, and March—approximate to, or are above, the average; while the mild and moist months of the year are all considerably below the average; April, as has been observed, is an exception, the greatest mortality occurring in this month. The hot season may be said to commence at the end of March, and its greatest intensity is towards the end of May and first week in June. The maximum mortality, therefore, is not dependent upon the maximum of heat. The rains commence usually before the middle of June, and the air then becomes mild and moist. The minimum mortality occurs in June, and it will be observed that it gradually increases with the monthly fall of temperature until November, when the greatest mortality occurs, excepting in the month of April. Considering that the thermometer never approaches the freezing point, it is somewhat curious that the relative cold of the tropics should appear to operate similarly upon the human frame as the absolute cold of extra-tropical countries. The fluctuations in the annual mortality in this table point out to the statistician with what caution he should strike his average per centages as types of natural laws. There is scarcely a period in the 11 years' mortality in which, if a per centage were struck for 3, or even 4 or 5 years, a fallacious result, a false type in fact, would not be produced, owing to the anomalies. Even the lengthened period of 11 years does not give a satisfactory annual per centage, more particularly so as the census of 1837 has been taken as a fixed element in the calculation, without reference to the annual movement in the population:—

Abstract Statement of Deaths among the Native Inhabitants of the City of Calcutta during the following Years, showing the Number per Month, the Grand Total, and the Average Rate per Cent. as per last Census.

Years.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Grand Total.	Average per Cent. per last Census.
1831	No Returns.		179	456	342	325	384	463	539	682	1,067	753	5,240	2.90
1832	890	571	691	637	754	511	616	759	885	951	938	1,065	9,308	4.28
1833	1,167	1,170	1,519	1,710	1,209	683	898	1,088	1,657	1,788	2,449	2,185	17,523	8.07
1834	1,068	732	891	1,326	1,296	589	958	1,224	953	1,193	1,564	1,238	13,067	6.02
1835	867	624	683	662	673	492	633	568	676	771	870	593	8,112	3.78
1836	637	535	680	692	628	600	628	733	638	770	713	641	7,895	3.63
1837	652	562	631	661	725	1,034	733	763	661	645	669	728	8,464	3.89
1838	674	721	1,651	2,389	1,434	549	487	632	663	623	777	798	11,393	5.24
1839	606	599	577	604	465	484	588	594	502	756	851	1,319	7,975	3.67
1840	1,326	1,356	1,349	1,095	854	555	746	807	834	706	1,101	1,001	11,730	5.40
1841	970	1,271	1,487	2,424	831	594	772	667	791	864	1,282	1,332	12,255	5.66
1842	2,132	2,241	1,132	2,199	1,037	445	618	634	586	851	1,172	1,069	14,111	6.52
	10,979	10,382	11,291	14,399	9,906	6,536	7,687	8,469	8,876	9,920	12,426	11,999	121,833	

Average 11.075

The following table exhibits the mortality among all classes in Calcutta for 20 years, but for the native population only 11 years. There are some trifling discrepancies in the annual amount of deaths among the natives between this and the preceding table, but I must leave them as I found them, being unable to explain the cause of the discrepancy:—

Deaths among all Classes in Calcutta, for 20 Years (1817—1836.)

Years.	Protestant	Burials.	Catholic Burials, D. Rozario.	Catholic Burials, Boitoekannah.	Greeks	Armenians	Indo-Armenians	Native Christians
1817	216	Scotch burying-ground began 1826.	313	169	4	10	3	..
1818	272		211	159	2	20	3	..
1819	275		284	158	..	23	3	..
1820	281		282	136	..	17	1	..
1821	246		277	172	..	16	3	..
1822	324		294	140	..	16	2	..
1823	270		277	156	..	10	2	..
1824	278		282	188	..	21	1	..
1825	297		285	154	1	12	10	..
1826	275		309	145	2	19	17	..
1827	254		308	174	..	15	16	4
1828	256		250	170	2	15	12	3
1829	184		209	146	3	12	16	2
1830	224		236	138	1	14	15	..
1831	186		236	122	3	17	19	8
1832	217		269	121	1	17	16	1
1833	302		288	204	2	23	14	5
1834	281		257	199	2	16	17	4
1835	233		233	115	1	7	16	4
1836	197		188	104	..	15	13	3
	5,065	240	5,288	3,070	24	315	199	34
	20	10	20	20	12	20	20	9
Avg.	253	24	264	153	2	15 $\frac{3}{4}$	10	2 $\frac{1}{3}$

Native Deaths for 11 Years (1832—1842)

Hindoo . . . 8,299	} 9,308 in 1832.	Hindoo . . . 9,802	} 11,316 in 1838.
Mussulman . . . 1,009		Mussulman . . . 1,514	
Hindoo . . . 15,138	} 17,523 in 1833.	Hindoo . . . 6,570	} 7,975 in 1839.
Mussulman . . . 2,355		Mussulman . . . 1,405	
Hindoo . . . 11,167	} 13,067 in 1834.	Hindoo . . . 9,027	} 11,730 in 1840.
Mussulman . . . 1,900		Mussulman . . . 2,703	
Hindoo . . . 6,873	} 8,102 in 1835.	Hindoo . . . 8,667	} 12,255 in 1841.
Mussulman . . . 1,229		Mussulman . . . 3,588	
Hindoo . . . 6,366	} 7,881 in 1836.	Hindoo . . . 9,955	} 14,111 in 1842.
Mussulman . . . 1,515		Mussulman . . . 4,156	
Hindoo . . . 7,097	} 8,464 in 1837.		
Mussulman . . . 1,367			

From the above are deduced the following results:—

Census of 1837.

Deaths. Per Cent.

157,473. The annual average of deaths for 11 years—Hindoos, 8,996= 5.71

59,604. Ditto ditto Mussulmans, 2,070= 3.47

3,350. The annual average of deaths for 20 years—Catholics, 417=12.44

Mr. Griffith Davies, F.R.S., in his Report on the State of the Bengal Fund, gives, at page 49, the rate of mortality amongst Bengal Military European officers; and, as it shows some novel and interesting facts, I insert it.

The mortality of <i>single</i> persons from 1824 to 1832 was—			Ditto <i>married</i> —		
	Per Cent.		Per Cent.		
Colonels	7.02	4.12	4.85	3.75	
Lieutenant-Colonels	6.38		3.92		
Majors	2.76	3.76	2.96	2.31	
Captains	4.18		2.55		
Lieutenants	3.74		2.06		
Ensigns	3.61		1.59		
All ranks collectively	3.77		2.74		

It would hence appear that the lives of married men are better than those of unmarried men.

The following per centage of deaths by particular diseases in Calcutta is given in the report to Government by T. Pemble Strong, Esq, surgeon, Twenty-four Pergunnahs :—

By Diseases	Cholera . . .	Amongst Mahomedans . . .	0.92	Per Cent. of all Deaths.
		Amongst Hindoos . . .	1.31	
	Small-pox . . .	Amongst Mahomedans . . .	11.9	
		Amongst Hindoos . . .	22.8	
	Various Diseases	Amongst Mahomedans . . .	1.73	
		Amongst Hindoos . . .	3.80	

I add to the above details of the mortality in Calcutta a curious fact, that in the Orphan School in Calcutta only 1 death took place between 1st October, 1842, to 30th September, 1843, in 270 children, although the admissions to the school hospitals amounted to 381—cholera cases 9, diarrhœa 18, dysentery 43, fevers 198.

The average monthly cost of each of the 270 scholars was Rs.10 11A. 8½P. The out wards were 2,086; the monthly expense of each was Rs.3 9A. 6¾P.

Mortality among Insane Patients at Calcutta and Madras.

—	Cases treated.	Died.	Deaths per Cent.
The deaths in the Calcutta Presidency Native Insane Asylum, in 10 years, from 1833 to 1842, were	2,685	454	16.90
Madras Lunatic ditto for 1843	77*	7	9.1

* Cured 4, discharged 10.

The next table (p. 55) has the defect of the others, and from the same causes, of affording approximations to the truth only: it shows, however, the fluctuating per centages of mortality in the different classes, when struck for a year or irregular periods of time; and it is so far useful as a beacon to the statistician. One feature of a marked and unusual character catches the eye at the first glance, and that is, the mortality amongst the Catholics. The average per centages of mortality being struck for various periods of time, in no instances is it found to be less than 9.18 per cent.; and for 20 years, up to 1835, the average is as high as 12.48 per cent. I know of no cause for such continued mortality, but which cannot be the result of accident.

Statement of the Mortality per Cent. among the different Classes of Inhabitants in Calcutta per Census, and Tables of the Mortality for 5, 8, 10, 20, and 23 years.

Denominations.	Popula- tion per Census.	Mortality per Tables of Mortality and Registers of Burials.										Average Mortality of the several Classes and Periods ascertained.						General Mortality of Calcutta as far as ascertained.		
		For 5 Years ending 1836.		For 10 Years ending 1839.		For 20 Years ending 1836.		For 1837.		For 1838.		For 1839.		For 8 Years.		For 13 Years.			For 23 Years.	
		Died Annually.	Per Cent. per Annum.	Died Annually.	Per Cent. per Annum.	Died Annually.	Per Cent. per Annum.	Died.	Per Cent.	Died.	Per Cent.	Died.	Per Cent.	Died Annually.	Per Cent. per Annum.	Died Annually.	Per Cent. per Annum.		Died Annually.	Per Cent. per Annum.
Christians, Scotch Burials	7,884	..	..	24	..	..	253	34	3.34	40	5.43	45	3.94	..	..	35½	..	..	3.55
Protestant . . . . .		..	..	..	..	264	12.48	230	10.56	231	11.64	265	9.18	244½	..	244½	..	244½	10.97
Catholics, Principal Church		..	..	..	..	153	3.93	102	4.37	123	4.56	74	4.56	..	..	..	..	184	4.48
Ditto, Boitoeknah Church		..	..	..	..	10	3.93	23	4.37	15	4.56	20	4.56	..	..	..	..	10½	..
Armenian. . . . .		..	..	..	..	635	6.06	648	5.46	639	5.81	646	5.44	..	..	..	..	639½	..
Indo-Armenian	636	..	..	..	..	..	..	8	4.37	14	4.56	9	4.56	..	..	..	..	..	..
Total Christians. . . .	11,861	..	..	24	..	635	6.06	648	5.46	639	5.81	646	5.44	..	..	35½	..	639½	..
„ Mahomedaus . . .	59,622	1,607	2.69	..	..	..	..	1,367	2.29	1,514	2.53	1,405	2.35	1,473	2.47	..	..	..	..
„ Hindoos	157,418	9,569	6.7	..	..	..	..	7,097	4.50	9,802	6.22	6,570	4.17	8,260	5.24	..	..	..	..
„ of all Classes. . .	228,901	11,176	..	24	+	635	5.20	9,112	3.98	12,005	5.24	8,621	3.76	9,733	+	35½	+	639½	+10.448½	

In the following tables, furnished by Dr. Strong, of the proportions of one class of the community to another, and the proportionate mortality of each class to that of other classes, it would appear that the whole of the Eurasians, or half castes, have been considered as Protestants, and the whole of the low castes have been added to the Hindoos. It would have been much more satisfactory had the relative proportions of each class been stated separately. The proportional mortality has been deduced from the average annual mortality, applied to the census of 1837, without reference to the annual movement of the population, the results are necessarily only approximations to the truth. I am not quite satisfied, either, that all the calculated proportions are correctly done. By the census of 1837 there are 59,604 Mahomedans of all nations, and 157,473 Hindoos of all castes; the proportion, therefore, is one Mahomedan to 2.64 Hindoos, and not 1 to 3½ Hindoos; but as some of the other proportions are correctly deduced from the census of 1837, the figure may be a typographical error. From this table it would appear that the Mahomedan is the healthiest class; the Protestant next; then follow the Armenians; the Hindoos are fifth on the scale; but most singularly the Catholics are, out of all proportion, the greatest sufferers of the whole community, not accidentally or casually so, but from a lengthened period; and as there is no effect without its cause, this unusual waste of human life calls for the grave investigation of the Government; and not less, also, is it matter of inquiry to ascertain why the mortality of the Hindoos is 5.71 per cent. while that of the Mahomedans is only 3.47.

PROPORTIONS.

<i>Census.</i>				Hindoos.
Armenians, 1 to	Catholics, 1 to	Protestants, 1 to	Mahomedans, 1 to	3 $\frac{2}{3}$
			7 $\frac{1}{2}$	20
			18	47 $\frac{1}{8}$
			93 $\frac{3}{4}$	247 $\frac{1}{2}$
	5 $\frac{1}{4}$	12 $\frac{1}{3}$		

Annual Mortality.

				Catholics.
Mahomedans, 1 to	Protestants, 1 to	Armenians, 1 to	Hindoos, 1 to	1 $\frac{5}{6}$
			1 $\frac{1}{3}$	1 $\frac{5}{11}$
			1 $\frac{5}{9}$	3 $\frac{1}{12}$
			2 $\frac{3}{8}$	4 $\frac{5}{12}$
	1 $\frac{5}{12}$	1 $\frac{5}{8}$		

The following table of the deaths amongst prisoners formed part of Dr. Strong's Report to Government, and is introduced here to exhibit the effects of the climate of Calcutta and neighbourhood upon a class of persons, who elsewhere, although employed upon the public roads, and usually in the open air, are dreadful sufferers. The mortality (nearly 8 per cent.) is no doubt high, but it bears a favourable comparison with the mortality in many other jails in India.

Abstract Statement of Deaths among the Prisoners of the Allipore and Russapagar Jails, and different Guards in the Twenty-four Pargunnahs, during the following years, showing Number per Month, the Grand Total, and the average Rate per Cent.—1711⁷/₂₅, being the average Number of Prisoners throughout the period; more than two-thirds of those are Prisoners for life, the rest temporary, like all other Zillah Prisoners; showing the three months of greater Mortality to be the cold-weather months, as in Calcutta.

Years.	January.		February.		March.		April.		May.		June.		July.	
	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.
1820	1,833	30	1,903	13	1,996	20	1,921	16	1,940	16	1,831	9	1,807	16
1821	1,816	17	1,809	10	1,832	11	1,927	12	1,974	11	1,995	7	1,894	10
1822	1,795	18	1,805	7	1,879	13	1,799	11	1,848	4	1,851	3	1,899	9
1823	1,629	11	1,644	10	1,595	10	1,593	7	1,635	6	1,571	10	1,511	10
1824	1,481	6	1,529	11	1,426	9	1,375	6	1,403	8	1,328	11	1,228	7
1825	1,599	6	1,498	10	1,434	17	1,463	18	1,249	17	1,187	8	1,139	9
1826	1,117	7	1,137	4	1,138	2	1,161	3	1,129	14	1,142	6	1,148	6
1827	1,179	6	1,212	4	1,116	7	1,153	7	1,226	15	1,232	1	1,298	12
1828	1,227	11	1,153	7	1,260	23	1,299	11	1,338	7	1,304	5	1,287	8
1829	1,327	15	1,289	4	1,376	6	1,330	12	1,335	6	1,386	5	1,434	8
1830	1,486	3	1,552	6	1,457	8	1,497	4	1,536	6	1,536	10	1,564	6
1831	1,474	19	1,575	10	1,586	11	1,651	9	1,632	16	1,619	11	1,635	7
1832	2,219	23	2,013	7	1,924	22	1,909	11	1,944	10	1,984	6	2,227	4
1833	2,067	12	2,118	13	2,372	23	2,170	11	1,918	7	2,117	7	1,932	10
1834	2,322	18	2,807	9	2,317	13	2,154	14	2,147	9	2,111	10	1,988	14
1835	2,109	23	2,188	7	2,211	11	2,037	13	2,035	14	2,225	9	2,118	6
1836	1,806	8	1,776	5	1,720	3	1,894	9	1,829	6	1,796	7	2,103	7
1837	2,021	10	1,928	3	1,953	9	1,947	4	1,982	8	1,934	15	1,912	8
1838	2,025	8	2,046	7	2,159	8	2,143	11	2,121	12	2,203	10	2,237	9
1839	2,245	10	2,242	12	2,130	8	2,089	13	2,109	8	2,087	16	2,125	5
	34,747	261	35,224	159	34,851	239	34,512	202	34,390	200	34,489	166	34,526	161
Per cent. } per ann.	1,737	904	1,761	539	1,744	820	1,726	701	1,719	700	1,724	574	1,226	562

Years.	August.		September.		October.		November.		December.		Grand Total of Prisoners.	Grand Total of Deaths.	Average Number of Prisoners.	Deaths per Cent.
	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.	No. of Prisoners.	No. of Deaths.				
1820	1,821	9	1,700	11	1,705	13	1,681	10	1,750	16	21,883	179	1,824	9.81
1821	1,778	16	1,772	20	1,762	9	1,759	24	1,762	20	22,080	170	1,840	9.24
1822	1,681	11	1,612	11	1,597	20	1,571	9	1,544	14	20,871	130	1,739	7.47
1823	1,416	12	1,386	10	1,404	14	1,394	9	1,385	9	18,163	118	1,514	7.79
1824	1,293	7	1,299	11	1,295	3	1,491	4	1,559	4	16,638	87	1,391	6.25
1825	1,151	13	1,051	15	1,173	8	1,122	12	1,088	7	15,154	140	1,263	11.08
1826	1,138	7	1,157	3	1,177	6	1,113	3	1,140	6	13,697	67	1,141	5.87
1827	1,304	5	1,210	7	1,271	8	1,242	6	1,198	5	14,641	73	1,220	5.98
1828	1,298	3	1,327	3	1,287	6	1,365	6	1,309	10	15,454	100	1,288	7.76
1829	1,466	5	1,386	6	1,459	3	1,487	4	1,886	12	17,221	86	1,435	5.99
1830	1,573	10	1,566	8	1,553	23	1,521	29	1,889	21	18,730	134	1,561	8.53
1831	1,615	11	1,545	12	1,531	29	1,945	29	2,081	23	19,833	187	1,638	11.27
1832	2,047	11	1,706	12	1,964	19	2,153	24	1,909	27	23,999	176	2,000	8.80
1833	1,991	21	2,037	23	2,217	37	2,057	33	2,209	29	25,285	231	2,107	10.96
1834	1,872	16	1,879	17	1,896	28	1,783	19	1,913	22	25,191	189	2,099	9.01
1835	2,013	8	2,002	9	1,843	7	1,836	7	1,883	10	24,500	124	2,042	6.07
1836	2,024	11	1,869	8	1,873	12	1,706	13	1,876	11	22,272	100	1,856	5.33
1837	1,916	8	1,939	6	1,938	8	1,961	12	2,048	10	23,529	101	1,961	5.15
1838	2,191	9	2,221	12	2,160	11	2,155	13	2,165	19	25,826	129	2,152	5.99
1839	2,170	6	2,217	5	2,179	11	2,175	16	2,062	19	25,800	129	2,150	6.0
	33,758	202	32,872	209	33,284	275	33,553	282	34,656	294	410,892	2,650	34,241	7.75
Per cent. } per ann.	1,687	717	1,643	761	1,664	991	1,677	1,007	1,732	1,016	..	..	1,712	..

These details have little beyond novelty to give them a claim to the attention of the statistician of Europe. The elements on the face of them give rise to doubts of their accuracy, and the deductions from them necessarily have not that rigid character of truth which would admit of their being put into juxtaposition with deductions of a similar nature obtained in Europe; but they have a certain amount of interest, so far as they go; and in time it is to be hoped that such attention will be paid to statistics in India as will permit the facts collected to be placed in the same category with those obtained in Europe.

Statistics of the Hospitals for the Insane under the Bengal Presidency.

By LIEUT.-COLONEL W. H. SYKES, F.R.S.

[Read before the Statistical Section of the British Association at York,
September 28th, 1844.]

THE following tables and notes are derived from the Official Reports of the proper Officers to the Government of Bengal.

There are four hospitals for the insane under the Presidency of Bengal, namely, that of the Twenty-four Pargunnahs, otherwise Russa, that of Moorshedabad, of Dacca, and of Patna.

The rate of cure and mortality in the years 1839 and 1840, in the several insane hospitals, is shown in the following statement:—

Division.	Year.	In Hos- pital on 1st January	Ad- mitted in the Year.	Total.	Number Cured and dis- charged.	Rate of Cures.	Number Died.	Rate of Mortality.
Twenty-four Pergun- nahs, or Russa . . .	1839	133	130	263	95	36 $\frac{1}{8}$	31	13
	1840	133	125	258	80	31	28	11
Moorshedabad . . .	1839	63	43	106	26	24 $\frac{1}{2}$	25	23 $\frac{1}{2}$
	1840	55	42	97	38	39	8	8 $\frac{2}{10}$
Dacca	1839	87	98	185	60	32 $\frac{260}{185}$	17	9 $\frac{35}{185}$
	1840	108	86	194	48	24 $\frac{144}{194}$	24	12 $\frac{72}{194}$
Patna.	1839	41	44	85	18	21	28	32
	1840	39	48	87	32	32	18	21

The average cures in all the hospitals in 1839 were 31·7 per cent., and the deaths were 16·2 per cent. In 1840 the cures were 31·1 per cent., and the deaths 12·2 per cent.

The rate of mortality in the Calcutta Native Insane Hospital for 10 years, from 1833 to 1842, is stated to be 16·90 per cent., there having been 2,685 cases treated, of which 454 patients died.

In the Madras Lunatic Asylum for 1843 there were 77 patients treated, of whom 4 were discharged cured, and 10 discharged not cured, and 7 died, or only 9·3 per cent.

With reference to the very large per centage of discharged cured in the above and the following tables, I understand that lunatics, whose malady has become so much ameliorated as to render them harmless, are frequently sent to their friends, and are included amongst those stated to be discharged cured.

The following table exhibits the admissions into the hospital of the

Twenty-four Pergunnahs, or Russa, for a period of 25 years, together with the annual expense of maintaining the lunatics. It would appear that, in that period, 2,957 patients were received, and 186 were in hospital in 1816; the total, therefore, 3,143. The total expense for that period was 243,332 rupees, the average annual number of patients being a fraction more than 125, and the average annual expense 9,733 rupees, or about 77 rupees (7*l.* 14*s.*) each patient annually, which is a fraction less than 3*s.* a-week for each patient, and this includes all charges of diet, clothing, medical attendance, &c.

Insane Hospital, Russa (Twenty-four Pergunnahs).

Years.	Number of Patients at the end of each Year.	Number of Admission.	Annual Expense.	Remarks by the Medical Officer in Charge.
1816	186	122	Rupees. 10,100	
1817	170	115	17,346	
1818	168	85	15,929	
1819	155	80	12,724	
1820	174	109	13,370	
Total	853	511	77,472	
1821	155	99	11,912	
1822	135	108	10,640	
1823	112	88	7,530	
1824	102	127	7,935	
1825	106	94	6,929	
Total	610	516	44,990	
1826	105	99	7,172	Some time after I had been in charge of the establishment, I found the drainage behind the southern apartments so bad, and the rooms so damp, that, after consulting the builders, Messrs. Goss and Shadwell, who made a plan of the asylum, which has been lost in some of the public offices, I reported upon it. The result was the making a compound south of the building, and changing the doors from the north side to the opposite, which was a considerable improvement as far as airiness and dryness were concerned; but the drainage is still very bad, and the water not running off readily, it is difficult to keep the ground-floor clean. After the application of Mr. John Master, the magistrate, and myself, in 1832, to get the entire floors repaired, finding a difficulty in getting it done, with the consent of that gentleman I procured bamboos, and the insane themselves made their own mutchans of them, being split and tied together for that purpose. Those answered tolerably well, certainly better than letting the insane lie on a damp pukka broken floor. But an insect the natives call "Ghoon," peculiar to the bamboo, after about two years, was so destructive that the bamboo mutchans were removed, and the present wooden ones made by Government, and fixed in their place. Still great dampness prevailed from the bad state of the ground-floors; and ventilators were about two years ago made in the ceilings; but the present establishment never can be fit for its inmates until the entire ground-floors and verandahs undergo the repair recommended by the superintending surgeon, Dr. Sawers, in 1836.
1827	109	100	7,478	
1828	109	132	8,180	
1829	149	134	8,435	
1830	143	129	8,543	
Total	615	594	39,808	
1831	120	143	8,734	
1832	121	116	7,042	
1833	121	158	8,064	
1834	125	146	8,011	
1835	137	126	7,586	
Total	624	689	39,437	
1836	116	144	7,929	
1837	144	116	8,057	
1838	133	132	8,554	
1839	133	130	8,183	
1840	150	125	8,902	
Total	676	647	41,625	

Rate of Mortality in Russa Lunatic Asylum (Twenty-four Pergunnahs), as deduced by the Medical Officer.

—	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	Average.
Per Cent.	26·16	26·21	15·13	20·0	16·38	15·58	12·92	10·85	9·64	14·76	16·90

Mr. Patten, the sessions' judge, reports to Government that the occupations of the lunatics are sewing, planting, transplanting, picking, drying, and sifting of coffee. Some coffee was shipped in 1831, after five years, to England, and the brokers reported favourably of it. Bourbon, Sea Island, and Upland Georgia cotton is cultivated with success. Sugar is produced from the Otaheite canes, and the sugar is approved by the Agricultural Society. Thousands of cuttings are sent to the coast. The cactus opuntia and the cochineal insect is cultivated; and two pieces of cloth, coloured with five grains of the cochineal, bears favourable comparison with Mexican; and Dr. O'Shaughnessy speaks favourably of it as a dye. Sappan wood is successfully cultivated; and seeds are sent to Australasia. The lunatics plant bamboo and Mysore thorn for hedges, and the Spanish annatto, mulberry, and cassida; also the aloe, for gum and fibre for ropes. The females spin, and beat, shell, and pick rice, and prepare fish, spices, and vegetables for the cook-room, and about $\frac{1}{10}$ of the males and females cook their own food.

The hospitals are not generally constructed to admit of classification.

The expense of the Russa Hospital for 1840 (Twenty-four Pergunnahs) was—

Lunatics, Daily Average.	Total Number Dieted Per Annum.	Total Cost for Diet Per Annum.	Total Cost for Clothing per Annum.	Total Cost for Servants.	Grand Total.	
		Rupees.	Rupees.	Rupees.	{ Natives . . 7,834 Half Castes . 1,068	Rupees.
146 $\frac{3}{4}$	53,398	4,717	609	2,507		8,902

Per Head Per Mensem.			Clothing Per Head Per Mensem.			Clothing for Servants Per Mensem.			Total Expense Each Patient Per Mensem.			Expense Half-Caste Patients, at 20 Rupees Each.		
Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
2	10	3	0	5	9	1	6	10	4	6	10	1,068	5	6

Native doctor, Rs.200 per annum (£20).

Native servants, Rs.5 3s. 7p. to Rs.4 per mensem (10s. to 8s.)

Diet contracted for at Rs.3 per head per mensem, or 6s.

The following rates of mortality amongst lunatics in Europe and America is introduced in the report to Government by the medical officer:—

—	Cases Treated.	Died.	Per Cent.	Authorities.
England, Scotland, France, } and America	18,185	4,793	26·35	Lancet for 1833—39, p. 223.
Cork Lunatic Asylum, 1834.	750	221	29·0	Ditto.
Six District Asylums, 1837 .	788	165	21·0	Ditto.
Charenton, Paris	1,557	546	35·6	Ditto.
Lancaster	1,750	577	32·97	Pritchard, p. 143.
Hanwell, six years . . . . .	..	..	27·5	Lancet.
Savoira, Italy . . . . .	..	..	42·50	Ditto, 1836—37.
English County Asylums .	..	..	28	Ditto, 1838—39.
Irish Asylums . . . . .	..	..	28	{ Parliamentary Returns, 1833.
York Retreat . . . . .	..	..	20	Lancet, 1836—37.
Wakefield . . . . .	..	..	24	Ditto.
Cork . . . . .	..	..	30	Ditto.
French hospitals in general .	..	..	22	Ditto.
Lancaster . . . . .	..	..	24½	Ditto.
Charenton, Paris . . . . .	..	..	25	Ditto.
Saint Luke's and Bedlam, } males	4,417	774	17	Ditto, 1838—39.
Paris, Salpetriere, 16 years .	2,804	790	28·3	French Report.
London and Middlesex, 10 } years ending 1840.	2,029	656	32·33	{ Dr. Connolly's Report, 1840.

In the Russa Lunatic Asylum for 10 years, 1833 to 1842 inclusive, the per centage mortality has declined from 26·16 per cent. to 9·64 (1841), and 14·76 per cent. (1842).

There is in the following return, as with the preceding returns, some discrepancies in the totals. The total number admitted, in 5 years, was 227; and there were in hospital, in 1835, 43 patients; the total number dealt with therefore, it appears to me, could only have been 270, and not 480; and as there were 88 deaths, the total loss in 6 years upon the numbers admitted was 32·5 per cent., and not 18 as stated. On the same principle as 270 patients only were recovered in 6 years, and 146 discharged, the per centage for that period was 54 per cent., and not 30 as stated.

*Statement showing the Rates of Cures and Mortality from 1835 to 1840.—
Patna Asylum.*

Years.	In Hos- pital.	Ad- mitted.	Total.	Number Entered and Dis- charged.	Rate of Cures per Cent.	Number Died.	Rate of Mortal- ity per Cent.	Remarks.
1835	43	35	78	18	26	7	10	{ Some cases of cholera occurred this year.
1836	53	31	84	37	48	7	8	
1837	40	32	72	18	26	17	22	
1838	37	37	74	23	31	11	14	{ An outbreak of cho- lera occurred in April and May. { Some cases of cholera occurred this year.
1839	41	44	85	18	21	28	32	
1840	39	48	87	32	32	18	21	
Total.	253	227	480	146	184	88	10·7	

Average cures . . 30 per cent. | Average mortality . . 18 per cent.

(Signed) S. DAVIES, Civil Surgeon.

I have thought a knowledge of the previous stations of the lunatics might interest the European statistician, and therefore give the following list of the occupations, and of the number of persons belonging to each occupation, prior to their admission into the hospital at Dacca.

1 Attorney.	1 Hurkerah.	2 Slaves.
1 Beggar.	1 Khitmaghers.	2 Sepoys.
2 Boatmen.	1 Khootes.	4 Servants.
3 Brahmins.	1 Khumkar.	1 Silver-thread maker.
3 Burkendaze.	1 Lateal	1 Sheep-keeper.
1 Buddeah.	1 Mallah.	1 Shoemaker.
1 Bullock-keeper.	2 Masons.	1 Syce, or Groom.
3 Byragees.	2 Mehters.	2 Tailors.
1 Carpenter.	4 Milkmen.	1 Talookdar.
3 Chuprassees.	1 Mohurrir.	1 Trader.
1 Confectioner.	1 Mollah.	4 Weavers.
1 Coolie.	1 Patnee.	1 Wheat-grinder.
19 Cultivators.	7 Prostitutes.	13 Occupations not known.
1 Darogah.	1 Peon.	
4 Fi-hermen.	1 Rajagur.	111
5 Fakeers.	1 Shopkeeper.	
1 Goldsmith.		

The patients are divided into private and criminal. The former are persons who have been confined at the request of their friends, or by orders of the magistrate, to prevent their doing mischief. The latter are individuals who have been tried and convicted before a court of justice of some heinous offence; of this class there are 21 in the asylum at present, namely, 12 Hindoos and 9 Mussulmans, of whom—

3 are fratricides.	1 confined for arson.
2 are matricides.	1 ditto for stealing a boat.
1 is a parricide.	1 ditto for illegal seizure and concealment of a man.
2 confined for murdering their slaves.	1 ditto for absconding with a man's wife.
2 ditto for murdering their wives.	1 ditto for attempting suicide.
1 ditto for murdering his betrothed.	1 ditto for having committed a rape.
4 ditto for wounding and manslaughter.	

Eleven of these criminal patients have fetters on their legs, and 10 of them only iron rings on their ankles.

The proportions of the different religious denominations in this hospital were—

—	Hindoos.	Mussulmans.	European.	Total.
Males . . .	48	45	1	94
Females . . .	11	6	0	17
Total . . .	59	51	1	111

I believe it has been remarked by medical men, that tropical climates are singularly free from cases of lunacy, compared with the climates of extra-tropical regions; but no evidence of the fact has fallen in my way. The preceding details, however, extracted from reports to the Bengal Government, will assist to fix this opinion upon a basis, which, if not entirely satisfactory, suffices to remove it from the region of speculation. Under the Bengal Presidency and Government of the North-West Provinces, comprising a population estimated to exceed 72,000,000 of souls, it is found that four asylums in 1840, having 639 patients, are sufficient

to receive all the lunatics that it is thought necessary to confine amongst that vast body of people; while in England and Wales, according to the recent Report of the Commissioners on Lunacy, there are 166 asylums, 16,735 pauper lunatics, and 1 pauper lunatic to every 980 of the population, besides 4072 private patients. I am not aware that there is more than one asylum at Madras, with 13,000,000 of souls; and there is only one at Bombay (with two trifling auxiliary establishments at Poona and Surat), for 6,000,000. Of course it is to be presumed that there are very many more lunatics than are in the asylums; but it may be questioned whether there are many dangerous or very troublesome lunatics, for if there were, the magistrates of districts would, I suppose, deem it requisite to send them to places of safety.

On the Sanatory Condition of the City of York. By T. LAYCOCK, M.D.,
Physician to the York Dispensary.

[Read before the Statistical Section of the British Association at York,
September 27th, 1844.]

IN the autumn of last year I was called upon by my fellow citizens to undertake the duty of secretary to the Sanatory Committee appointed by the municipal authorities to co-operate with Her Majesty's Commissioners for Inquiry into the Sanatory Condition of Large Towns and Populous Districts. A series of questions was circulated by the Commissioners, and it became my duty, instructed and assisted by a Sub-Committee, to collect and arrange such facts as were available in returning an answer to those questions. The report before you, printed by direction of the Commissioners, was the result of our labours.

From circumstances which I need not detail it was found necessary to limit the vital statistics in that report illustrative of the present public health of York to the years 1839, 1840, 1841. Statistical tables were deduced, with as much accuracy and detail as our time and means permitted, from the entries of deaths in the public registries for those years. I felt, however, in common, I believe, with all persons practically acquainted with inquiries of this kind, that the period of three years was too short a time for the purpose, and I made arrangements for extending the inquiry over the five years from 1839 to 1843 inclusive. This inquiry I have made, and I now present the results to the Association.

Taking the population of 1841 as the mean population, the deaths in York have, on the average of the last five years, amounted to nearly 1 in 40, or $2\frac{1}{2}$ per cent. annually. The deaths of persons aged under 5 years amounted to 42 per cent. of the total deaths; the mean age at death was $27\frac{3}{4}$ years. The births were 1 in 32.42. During the three years taken for the report the births were 1 in 34 nearly, the deaths about 1 in 38, or nearly $2\frac{3}{4}$ per cent.; the mean age at death was $32\frac{1}{4}$ years within a fraction, and the number dying aged under 5 years amounted to 42 per cent. of the total deaths. The deaths of children aged less than one year amounted to 23 per cent. of the annual births; in 1841, according to the Fifth Report of the Registrar-General, the deaths in England and Wales of infants under the age of 12 months amounted to 74,210, or about $14\frac{1}{2}$ per cent. of the births in that year. In York the proportion

on the average of the five years was $21\frac{1}{2}$ per cent. ; consequently if the infantile mortality has been as great throughout England as in York, the number of deaths would have been 111,000 instead of 74,000. The infantile mortality in York appears, however, much more excessive when compared with that of an agricultural district exclusively, as for example the North Riding. In the four districts of this division of the county the deaths under one year were $10\frac{1}{4}$ per cent. of the births ; had they been as numerous as in York, instead of 592 there would have been 1250 deaths at that age.

Table exhibiting the varying Ratio per Cent. of the Annual Deaths under One Year of Age to the Annual Births.

—	Deaths under One Year in 1841	Births in 1811	Ratio per Cent.
All England	74,210	512,158	11·48
North Riding of Yorkshire .	592	5,763	10·27
York	213	896	23·77
Leeds	1,125	6,696	16·80
Manchester	1,446	7,161	20·19
Liverpool	1,891	7,735	24·57
York 1839-43	953	4,418	21·5

On comparing the two tables of the sanatory condition of York, and taking the average age at death as the standard of measurement, the general results are the same. Individual parishes have changed their relative position ; but the change has been in accordance with what might have been *à priori* expected. With two exceptions, in all the parishes in which the mean age at death is below the average of the city, the mean altitude is below the general mean altitude. These two exceptions, Beddern and Goodramgate, contain some of the most crowded and uncleanly districts in York. On the other hand, all the parishes, with two exceptions, in which the mean age is above the general mean have a mean altitude above the general mean. The exceptions are, St. Michael Spurriergate, and St. Maurice, and in these the low-lying portions have no houses in them. If the localities in York be classed according to their altitudes the results are still more striking. I have a table here in which I have arranged them in three classes, namely, the high, the intermediate, and the low. It will be seen that the population is least dense in the highest parishes, most dense in the lowest. It will be seen, too, that the labourer and mechanic sink down to the lower situate parishes. I do not stop to inquire the reason of this ; the fact is so. The mean age at death diminishes progressively too as we descend : in the highest parishes it is 36·13 years, in the lowest 24·14, in the intermediate 28·37. The infantile mortality follows the same variation in altitude, density of population, and occupations of the people. In the high parishes 17·6 per cent. of the children born die in the first year of their age ; but in the intermediate parishes 20 per cent die, and in the lowest 23 per cent. The annual proportion of births and of deaths from all causes, from epidemics, and from pulmonary disease, corresponds with the other general facts.

For the Five Years 1839-43, and the Three Years 1839-41.	Mean altitude.	Population in Square Rod.	Mean Age at Death.	Ratio per Cent. Dying under One Year to Annual Births.	Inhabitants to One Birth Annually.	Inhabitants to One Death Annually.			Deaths of Labouring Class per Cent.	Deaths of both La- bourers and Artizans.
						From all Causes.	From Epi- demics.	From Pul- monary Disease.		
1839-43										
Best drained and ventilated } parishes	50	27	36.31	17.6	38.60	51.43	323.16	277.23	12.92	34.00
Intermediate parishes }	43	40	28.37	20.0	28.71	40.80	303.43	235.23	21.73	51.07
Worst drained and ventilated } parishes	33	63	24.14	23.1	16.42	33.97	176.00	153.33	23.41	70.46
1839-41										
Best drained and ventilated } parishes	50	27	35.32	17.3	47.50	54.32	347.72	334.22	..	40.2
Intermediate parishes }	43	40	27.29	21.8	36.53	41.41	247.20	219.70	..	52.5
Worst drained and ventilated } parishes	33	63	22.57	24.8	26.62	32.15	129.43	153.00	..	62.8

To render the results obtained more certain I have divided the intermediate parishes into portions, and made two classes out of them. The mean altitude of the higher class is 49 feet, of the lower 38 feet. In the former there was one death from epidemical disease annually in 398 persons living on the average of the 5 years; in the latter there was one death of this kind in 224 persons living. The years 1839, 1840, 1841, were more remarkable for epidemical affections than 1842 and 1843. During the latter years only one death in 371 occurred from this class of diseases in the low lying portions of the intermediate parishes; but in the higher parts of the same parishes there was one death in 607 only, so that the relative sanatory state is still preserved. I have three tables here, first for the 5 years; next for the first 3 years of the 5; and, thirdly, for the 2 remaining years. Upon inspection it will be seen that the mean age at death and the general mortality present a uniform contrast.

—	Mean Altitude.	Popula- tion.	Inhabitants to One Annual Death.		Mean Age at Death.
			From all Causes.	From Epidemics.	
1839-43					
Best conditioned portion of the intermediate parishes . . }	49	4,858	43.92	398.18	29.35
Worst conditioned portion of the intermediate parishes . . }	38	6,871	37.75	224.54	26.42
1839-41					
Best conditioned portion of the intermediate parishes . . }	49	4,858	43.91	323.86	30.48
Worst conditioned portion of the intermediate parishes . . }	38	6,871	37.08	177.08	27.35
1842-3					
Best conditioned portion of the intermediate parishes. . . }	49	4,858	43.95	607.23	27.66
Worst conditioned portion of the intermediate parishes . . }	38	6,871	37.68	371.40	24.66

I will now explain how the data of these tables were obtained. My first object was to get the simple facts from the Registrars' books, and have them

tabulated. The first tabulation was topographical. I had each death extracted from the registry and entered on sheets of paper according with the locality. The formula was purposely made as simple as possible, I then had these facts re-tabulated according to this form, the fundamental principles of which are two,—the exact locality and the occupation of the deceased. The aggregates of these afford the aggregate of the whole city.

These statistical details would, of course, be of little value if nothing were known of the locality to which they refer. A map then, and a map of a particular kind, is requisite. An outline map of York, drawn on the scale of 20 inches to the mile, has accordingly been constructed under the superintendence of Captain Tucker, the able officer in command here of the Royal Engineers. It was constructed expressly to facilitate the inquiry in York. On inspecting the map it will be seen that the boundary of each parish is laid down; that each is divided into blocks and numbered, the numbers referring to this document in which the areas in each block occupied by buildings, public edifices, water, gardens, yards, courts, and streets is stated. The numerals in blue ink indicate the altitude of that point above the datum plane of mean tide. Having been supplied by the Health of Towns' Commission with the Population Returns of York in such a way as to show the numbers living in 1841 in each parish, I was enabled to estimate, with tolerable accuracy, the density of the population not only in each parish but in any given portion of the surface of the city. The ratio of density of population in each parish and district was obtained, however, not by dividing the total area by the numbers living in 1841, but by making the area occupied by buildings the dividend. This was necessary to a true estimate of the sanatory effect of density, as the poorer classes in some instances live in dense masses, surrounded by large open spaces. The great deficiency in this map is, that the drainage and sewerage are not shown, but I believe the Ordnance Survey is not in possession of the requisite data. This short paper is presented only as supplementary to the Report printed by the Health of Towns' Commission. The facts as to the occupations of the deceased are only approximatively accurate.

Statistics of Old and New Malton. By WILLIAM CHARLES COPPERTHWAIT, F.S.S., Borough Bailiff of Malton.

[Read before the Statistical Section of the British Association at York, Sept. 27th, 1844.]

THIS paper contains an elaborate report of the statistics of the town and parishes of New and Old Malton; and, comprising as it does the details of almost every branch of parochial statistics, it is impossible in any space which can here be devoted to it, to present any farther abstract of its contents than an index to the subjects discussed. If, however, opportunity should hereafter permit us to lay before our readers some of its most interesting sections at length, their value as a model of local research, directed to the correction of general principles by specific experience, will be found to give them a value far beyond that of merely local information. An historical essay, tracing the family genealogy and the descent of property from the earliest dates, through the Roman, Saxon, and Norman eras down to the present times, introduces the statistical survey, which is arranged under the following heads:—

1. *Description and Topography* of the district, which consists of the town of New Malton, the parish of Old Malton, the village of the same name, and the hamlets of Whykeham and Howe. The distribution of the population in the streets, the condition of the streets as to surface, lighting, sewerage, &c., and the shops, public-houses, beer-shops, &c. are described.

2. *Division and Tenure of Property*.—Thirty-four landowners, owning 3,833 acres, and the extent owned by each, three only being above the value of 50*l.* per annum: 75 proprietors of 1,086 houses, and the number owned by each. The annual value of the houses—

21 per cent. being rented at or under £2 per annum.

42 „ „ „ from £2 to 5 „ „

13 „ „ „ £5 to 10 „ „

12 „ „ „ £10 to 20 „ „

10 „ „ „ above £20 „ „

The changes which have taken place in the division of property since 1625.

3. *Population and Vital Statistics*.—The present population is 5,317, consisting of 1,136 families, and of 2,592 males and 2,725 females.

The progress of population from 1801 to 1811 was 23·3 per cent. increase.

„ „ „ 1811 to 1821 „ 8·4 „

„ „ „ 1821 to 1831 „ 6 „

„ „ „ 1831 to 1841 „ 1·1 per cent. decrease.

Tables of the Births, Deaths, and Marriages are given for each year, and for each parish from the year 1606.

Tables of the recorded ages at death of 2,922 persons, show that 23·12 per cent. die under one year of age, 33·01 under three years of age, 54·13 under 30 years, and 81·72 under 70 years.

In the North Riding of Yorkshire 21· per cent. survive 70 years of age.

In Old Malton 19·87 „ „

In New Malton. 16·68 „ „

In London 10·40 „ „

In Sheffield 6·6 „ „

In Liverpool and Manchester . . 6·3 „ „

The progress of mortality has been as follows:—

1801 to 1811 2·6 per cent. decrease

1811 to 1821 0·6 „

1821 to 1831 0·5 „

1831 to 1841 4· per cent. increase.

Tables are also formed of the MORBILITY or liability to disease, but are too long to be here alluded to.

The immigration into the parish is as follows; 5·2 per cent. were born out of the county; of these 0·9 per cent. are Irish, and 0·3 per cent. Scotch.

The proportion of the *single* to the married is—

From 30 to 40 years of age, Males 20 per cent. single, Females 23 per cent.

40 to 50 „ „ 20 „ „ 22 „

Upwards of 50 „ „ 29 „ „ 33 „

The number of persons to a family has not varied much during the four decennial periods since 1801:—

At present it is 4·6 to each family.

The number of persons in a house is . . . 5·1 „

The number of living children to a marriage is 4·7 each.

The proportion of still-born children is 1 in 12

The proportion of twin births is . . 1 in 203 in St. Michael's parish.

„ „ . . 1 in 166 in St. Leonard's parish, being the residence of the poorer classes generally.

The proportion of legitimate and illegitimate children is, on an average of 40 years, 7·5 per cent. on the whole births. The progress of this crime is as follows :—

10 years ending 1810 there were 5·3 per cent. illegitimate.

„	1820	„	6·7	„
„	1830	„	8·7	„
„	1840	„	9·4	„

4. *Industry*.—Under this head the relative number of persons employed in each description of *industry*, and the amount of wages by day and by piece-work, &c. are given.

5. *The Mechanical power* used in the parishes.

6. *Agriculture*.—Under this head very minute details are given of the size, soil, condition, crops, stock, labour employed, produce of wool, poultry, &c., the rent, public burthens, &c. of each farm in the parish. The price of land in the parish and in the adjoining parishes, and the changes which have taken place in the price of land, and much other agricultural information too long to be here inserted.

7. *The Condition of the Labouring Classes*.—Details of the allotment system which has been adopted since 1810, of the Friendly and other Societies established for the benefit of the labouring classes. An investigation at great length into the money and other earnings, weekly and yearly, of the poor; and of their expenditure in the several items of outgo. The average income from all sources of each working man's family is about 37*l.*, or 8*l.* 14*s.* each person in the family.

The expenditure is as follows :—

Potatoes generally supplied from gardens and allotments.		
Butchers' meat	14·5	per cent. of the whole earnings.
Flour	35·7	„ „
Cheese, ale, and groceries	7·5	„ „
Fuel, soap, and candles	13·	„ „
Milk	2·3	„ „
Schooling, clubs, &c.	3·7	„ „
Clothing, Shoes, Bedding	10·5	„ „
House rent	7·8	„ „
Land rent, &c.	3·5	„ „

8. *Markets and Prices*.

9. *Education*.—Under this head are tables, giving the details of each school, public and private, in the district. The number, age, sex, &c. of the scholars, the subjects taught, the payments, and other particulars.

Amongst children from 5 to 15 years of age in Malton, 75 per cent. receive some degree of education, the proportion in the following places, is in Bury, in Lancashire, 87; Salford, 77; York, 66; Newcastle, 51; Birmingham, 48; Liverpool, 47. The cost of each scholar in every description of school, of course exclusive of boarding, is, on a rough estimate, 24*s.* per annum.

10. *Religion*.—The details of each place of worship are given; from which it appears that, taking all the places of worship together, there are sittings for the entire population of the district. Whilst upon a rough estimate, the maintenance of the clergy and ministers (including the Church living) amounts to about 13*s.* each family; the amount paid for church rates about 2*s.* 1*d.* each family, and the contributions to various religious and missionary societies, &c. amounts to 8*s.* 6*d.* each family.

On the Duration of Life among the Families of the Peerage and Baronetage of the United Kingdom. By WILLIAM A. GUY, M.B. Cantab, Fellow of the Royal College of Physicians, Professor of Forensic Medicine in the King's College, Physician to King's College Hospital, Honorary Secretary of the Statistical Society, &c.

IN the course of some inquiries undertaken with a view of illustrating the influence of employments upon health, the want of a standard with which to compare the duration of life in the several classes of society, and in persons following different occupations, made itself strongly felt. There are two principal means of determining the influence of professions and employments on longevity; the one by comparing the age at death of persons following those professions and employments with the age at death of a class placed in the most favourable circumstances; the other by instituting a similar comparison between the ages of the living. In either case it is necessary that the comparison should be exact. For this purpose, whether the average age at death or the average age of the living is to be our test, we must commence the inquiry from the same age in each class. If, for instance, we wish to determine the influence of literary pursuits on longevity, we must first ascertain at what average age men engage in such pursuits, and then compare the mean age of the living and the mean age at death of that class with those members of the standard class who have attained the same age. For want of such simple precautions, and of the necessary standards of comparison, little real progress has been made in this most interesting department of vital statistics.

The standard of comparison which we select for use ought to be one presenting as favourable an average age as possible. This age is most likely to be attained by the class that combines the greatest number of physical advantages, and has at its command all the means by which health may be preserved, and the best advice and assistance procured in case of accident or illness. There is no class which possesses all these advantages in so eminent a degree as that which is the subject of the present communication.

The first object, then, which I had in view was to combine the materials afforded by the peerage and baronetage, so as to form some useful standards of comparison. But the facts which were thus collected evidently admitted of being applied to the solution of some other questions of considerable interest, though of less practical importance, which are accordingly discussed in the course of this inquiry.

That I might collect as large a number of facts as possible, the peerage and baronetage were jointly laid under contribution; and, for the same reason, I did not limit myself to the successors to titles, but extracted the age at death of all males 21 years old and upwards, whose age is distinctly stated or admits of calculation,* excepting only such as died in battle or came to their death by accident.

It is not pretended that facts thus gleaned from books of the peerage and baronetage, without further verification, are worthy of implicit confidence; but it is probable that the error to which they are subject is not

* Sharpe's Peerage, 1830, and Debrett's Baronetage, 1832, were employed, as being at hand.

greater than that which would attach to any other collection of ages—as, for instance, to that of the ages of men engaged in scientific or literary pursuits, or belonging to any particular profession. For purposes of comparison, therefore, it is believed that the tables contained in the present essay may be safely employed, and will be found useful.

The number of facts is 2291, of which 1989 were gleaned from the peerage and the remainder from the baronetage. The total number dying at each age is shown in the following table:—

TABLE I.

Age.	Number of Deaths.	Age.	Number of Deaths.	Age.	Number of Deaths.	Age.	Number of Deaths.	Age.	Number of Deaths.
21	7	38	27	55	55	72	65	89	13
22	8	39	29	56	46	73	62	90	10
23	19	40	15	57	37	74	44	91	7
24	21	41	17	58	40	75	51	92	4
25	12	42	35	59	33	76	49	93	4
26	12	43	30	60	47	77	48	94	3
27	15	44	26	61	49	78	34	95	3
28	18	45	24	62	54	79	33	96	2
29	23	46	34	63	52	80	49	97	2
30	17	47	39	64	36	81	36	98	3
31	18	48	27	65	49	82	33	99	1
32	19	49	45	66	36	83	23	100* and up- wards	2
33	26	50	36	67	37	84	28		
34	16	51	37	68	48	85	27		
35	20	52	31	69	56	86	20		
36	17	53	36	70	64	87	33		
37	19	54	36	71	36	88	16		

* One death at 102. This is the greatest recorded age, with the exception of Sir Ralph De Vernon, who is stated to have lived to 150, and was called the “Long liver.” Elizabeth, Margaret, and Anne, daughters of Edward Legge, one of the ancestors of the Earls of Dartmouth, attained the ages respectively of 105, 105, and 111. The average age attained by 38 females, exclusive of those now named, was 56·32.

In the following tables the deaths are given for periods of five and ten years respectively, and a column is added presenting the per centage proportions at each quinquennial and decennial period:—

TABLE II.

Age.	Number of Deaths.	Per Cent.	Age.	Number of Deaths.	Per Cent.
21—25	67	2·92	66—70	241	10·52
26—30	85	3·71	71—75	258	11·26
31—35	99	4·32	76—80	213	9·30
36—40	107	4·67	81—85	147	6·42
41—45	132	5·76	86—90	92	4·01
46—50	181	7·90	91—95	21	0·92
51—55	195	8·51	96—100	10	0·44
56—60	203	8·86	and up- wards		
61—65	240	10·47			

TABLE III.

Age.	Number of Deaths.	Per Cent.	Age.	Number of Deaths.	Per Cent.
21—30	152	6·63	71—80	471	20·56
31—40	206	8·99	81—90	239	10·43
41—50	313	13·66	91—100	31	1·36
51—60	398	17·37	and up-		
61—70	481	20·99	wards		

The facts contained in the preceding tables have, through the kindness of Mr. Neison, been converted into a life table, which is subjoined:—

TABLE IV.—*Showing the Expectation of Life in the Families of the Peerage and Baronetage, as calculated from the foregoing data.*

Age.	Peerage and Baronetage.	Age.	Peerage and Baronetage.	Age.	Peerage and Baronetage.	Age.	Peerage and Baronetage.
18	40·2061	40	24·4500	62	11·6080	84	4·1770
19	39·3215	41	23·2420	63	11·1420	85	3·9958
20	38·4750	42	22·5921	64	10·6830	86	3·8400
21	37·6614	43	21·9635	65	10·2303	87	3·7117
22	36·9640	44	21·3520	66	9·7857	88	3·6076
23	36·1016	45	20·9494	67	9·3518	89	3·5084
24	35·3445	46	20·1742	68	8·9325	90	3·4044
25	34·5967	47	19·6039	69	8·3521	91	3·2729
26	33·8543	48	19·0404	70	8·1506	92	3·1161
27	33·1200	49	18·4803	71	7·7873	93	2·8989
28	32·3912	50	17·9221	72	7·4405	94	2·6338
29	31·6535	51	17·7590	73	7·1102	95	2·3720
30	30·8760	52	16·8121	74	6·7941	96	2·1159
31	30·2306	53	16·2270	75	6·4866	97	1·8689
32	29·5153	54	15·7137	76	6·1883	98	1·6363
33	28·8023	55	15·1722	77	5·8996	99	1·4231
34	28·2900	56	14·6308	78	5·6204	100	1·2142
35	27·3790	57	14·0970	79	5·3506	101	1·0000
36	26·6700	58	13·5737	80	5·0884	102	0·7500
37	25·9690	59	13·0637	81	4·8389	103	0·5000
38	25·1590	60	12·5671	82	4·2016		
39	24·5830	61	12·1091	83	4·3799		

It may be interesting to compare the expectation of life in the subjects of the present essay with that of the male inhabitants of the country at large and of some of its chief cities. This comparison is made in the following table (V.), compiled from the Fifth Report of the Registrar-General, and presenting the expectation of life at intervals of five years from 20 years of age up to periods of life more or less advanced. All the columns consist of round numbers, which, in the case of the peerage and baronetage, express the number of years nearest to any unit.

The table next following (VI.) also affords some interesting comparisons. It places side by side the expectation of life in the families of the peerage and baronetage, and some of the best known and most valued life tables.

The life tables for the peerage and baronetage for England, for Sweden and Finland, and for the English annuitants, are calculated on the lives of males only, the remainder upon those of both sexes in varying proportions. The lives assured in the Equitable and Amicable were nearly all males.

TABLE V.

Age.	Peerage and Baronetage.	England.	Surrey.	Metropolis.	Liverpool.	Age.	Peerage and Baronetage.	England.	Surrey.	Metropolis.	Liverpool.
20	38	40	42	36	33	65	10	11	11	..	..
25	35	36	38	32	30	70	8	8	8	..	..
30	31	33	34	29	27	75	6	6	..	..	..
35	27	30	31	25	23	80	5	5	..	..	..
40	24	27	27	22	21	85	4	4	..	..	..
45	21	23	24	19	18	90	3	3	..	..	..
50	18	20	21	16	15	95	2	2	..	..	..
55	15	17	17	14	..	100	1	..	..	..	..
60	13	14	14	..	..				

TABLE VI.

Age.	Peerage and Baronetage.	England (Mr. Farr.)	English Annuitants (Finlaison.)	Sweden and Finland (Milne.)	Carlisle (Milne.)	Equitable (Morgan.)	Amicable (Gallo-way.)	French Annuitants (Depareux.)
20	38	40	38	39	41	42	..	40
25	35	36	36	35	38	38	38	37
30	31	33	33	32	34	34	34	34
35	27	30	30	28	31	31	30	31
40	24	27	27	25	28	27	26	27
45	21	23	24	21	24	24	22	24
50	18	20	20	18	21	20	19	20
55	15	17	17	15	18	17	16	17
60	13	14	14	12	14	14	13	14
65	10	11	12	10	12	11	10	11
70	8	8	9	7	9	9	8	9
75	6	6	7	5	7	7	6	6
80	5	5	5	4	5	5	5	5
85	4	4	3	3	4	3	4	3
90	3	3	2	3	3	3	3	2
95	2	2	..	2	3	..	..	..
100	1	..	..	..	..	..	..	..

A comparison of the columns of these two tables is less favourable than might have been anticipated to the higher classes, the expectation of life among the families of the peerage and baronetage being during the greater part of life less than in the whole of England, in the county of Surrey, in Sweden and Finland, among the persons (chiefly males) insured in the Equitable and Amicable, and among the French and English annuitants. On the other hand, the expectation of life is greater than among the inhabitants of the metropolis and Liverpool.

In searching for an explanation of this somewhat unexpected result, two alternatives offer themselves; either the deaths recorded in the peerage and baronetage include those of an undue proportion of young persons, by which the expectation of life is made to appear less than it really is, or the sanatory condition of the entire class is less favourable than the many advantages they possess over the greater part of the com-

munity would lead us to expect. The former alternative does not appear very probable, as there is no obvious reason for the disparity just mentioned. All males who attained the age of 21 or upwards have been included in the tables, without any other exception than those who perished by violence or accident. As death from these causes generally occurs comparatively early in life, these exceptions would tend to make the expectation of life appear somewhat more favourable. The latter alternative, therefore, namely, that the sanatory condition of the privileged classes is less favourable than that of the several classes included in the table, seems the more probable one.

Assuming that the expectation of life is duly represented by the table, how, it may be asked, are we to account for its being less favourable than that of entire nations, and of classes of society including many persons placed under what are usually considered less advantageous circumstances? It is not easy to find an answer to this question; but we are assisted in our search after a solution by observing that the expectation of life is more favourable for the more advanced ages than during early and mature manhood. Thus, while up to 55 years of age inclusive the expectation of life in one or more of the other columns exceeds that of the peerage and baronetage by three or four years, at no period beyond that age, if we except that of 65, does the difference exceed one year. At 65 years there is a difference of two years. At every period up to 55 years, moreover, the expectation of life in the peerage and baronetage is as low as in any other column, and in several instances lower than in all the columns, while after 55 years it is, with the one exception of 65, higher than in some one or more of the other columns.

It is at the earlier periods, therefore, that the expectation of life is most unfavourable. Does this admit of explanation? The facts which we at present possess do not furnish any clue to the true cause. Is the luxury which must needs accompany the command of ample means of self-indulgence a sufficient cause? Is the absence of those inducements to exertion which stir men in other classes of society to constant activity, and save them from many dangerous excesses, injurious to health? Are both these causes combined sufficient to account for the loss of a few years of life? It is by such queries as these that the difficult question just proposed must be met. It cannot be satisfactorily answered.

Leaving these questions, which do not admit of any satisfactory solution, it is proposed to make use of the facts contained in the foregoing tables for the determination of one or two points of considerable interest.

The first question which has suggested itself is whether the duration of life among the higher classes has varied at different periods; and if so, whether, like that of the community at large, it has continued progressively to increase?

With a view to the solution of this question, the several facts have been arranged according to their dates, during the earlier periods by centuries, and more recently by half centuries. The ages at death of all males born in the 13th, 14th, and 15th centuries, and in the first and last halves of the 16th and 17th centuries, and the first 45 years of the 18th century, are thrown together, and the average taken. The last period has been made to include 45 instead of 50 years, inasmuch as from 85 to 87 years (85 for the peerage and 87 for the baronetage) is thereby allowed to intervene between the last year of the term and the present

time, an interval sufficiently long to comprise the deaths of the greater number of persons born in those 45 years. The following table exhibits the results of this arrangement and calculation :—

TABLE VII.—*Duration of Life among the Higher Classes at different periods.*

Date of Birth.	Number of Facts.	Average Age.	Date of Birth.	Number of Facts.	Average Age.
1200—1300	7	64·14	1550—1600	100	68·25
1300—1400	9	45·44	1600—1650	192	63·95
1400—1500	23	69·11	1650—1700	346	62·40
1500—1550	52	71·27	1700—1745	812	64·13

The facts from which the averages for the first three centuries are calculated are not sufficiently numerous to be entitled to much consideration ; and this observation applies with somewhat less force to the first half of the 16th century. But the averages for the last four periods are sufficiently numerous to yield an approximation to the true average. They lead to the following result :—that among males born from the middle of the 16th till the close of the 17th century, the expectation of life has diminished from $68\frac{1}{2}$ years to about $62\frac{1}{2}$ years, a decrease of nearly six years ; and that among those born during the first half of the 18th century, it has again increased by nearly two years, namely, from 62·40 to 64·13. This increase is evidently less than that which has really taken place, for the average for the latter period does not comprise all the deaths of males born in the first 45 years of the 18th century, and, without doubt, some few males born towards the close of that period were still alive at the date of the compilation of the Peerage and Baronetage from which the facts used in this paper were taken. The number of such cases, however, must be necessarily very small, so that the average would probably be increased only by a fraction of an unit, and the difference would not exceed two years. The mean age of 189 members of the families of the peerage born in the interval 1700—1730, is 63·70.

Both these results are curious, and should they derive confirmation from more precise investigations, will lead to much interesting discussion. The progressive decrease in the value of life during three successive half centuries, and, if the number of facts on which the average for the first half of the 16th century is founded be deemed sufficient, for four successive half centuries, is extremely remarkable, and does not admit of a ready explanation. The increased value of life among those born in the first half of the 18th century, as compared with the period immediately preceding, may possibly be attributed to the marked improvement which has taken place in the habits of the upper classes since drunkenness was a fashionable vice and abstinence a reproach. It may admit of question whether the numbers in the table from the beginning of the 15th century to the middle of the 18th are not a fair representation of the effect on health of habits gradually degenerating till they reached the point of the most extreme intemperance, and then again gradually improving. These interesting questions must be left undecided till the facts contained in these tables have been

either confirmed or invalidated by inquiries of a more precise kind, founded on facts better verified.

The facts from which the tables are formed may be used to determine another question of some little interest, namely, are there any particular ages marked by an excessive mortality? The ancients, it is well known, attached great importance to certain ages, attributing to them unusual danger and a high mortality. These ages, which were designated as the climacteric years, are the 49th, the 63rd, and the 81st, entitled respectively the lesser climacteric, the climacteric, and the grand climacteric. Although the fanciful value attached to the number seven and its multiples is perhaps a sufficient explanation of the importance attached to the first two periods, it may possibly have happened that a rude observation of the ages at which death took place bore its part in the establishment of the theory. It may, therefore, be worth while to submit this theory to the test of facts. The inquiry, indeed, derives an additional interest from the occasional revival in modern times of the superstitious importance formerly attached to certain numbers. On referring to Table I. it will be seen that the number of deaths opposite the age of 49 is somewhat in excess of the numbers in several preceding and succeeding years. It exceeds by six deaths the number at the age of 47, which is the highest number for all the earlier ages, and by eight deaths the highest number for the next five years. The precise numbers are, at 49 years 45 deaths, at 47 years 39 deaths, and at 51 years 37 deaths. The number of deaths at the age of 63, on the other hand, falls short of the number in the year preceding by two deaths, and only exceeds the number in the 61st and 65th year by three deaths. Again, the number of deaths at 81 years of age, though somewhat greater than in the year following, and higher than in every preceding year, falls greatly short of the number in the year immediately preceding. Of the three climacteric years, then, there is only one (49, or the lesser climacteric,) which displays any excess of deaths, and, even in this case, the excess is not so large but that it may safely be attributed to a coincidence. If we include the year before and after each climacteric year, and compare this triad with the triads immediately preceding and following, we shall have the following results :—

Years.	Deaths.	Years.	Deaths.	Years.	Deaths.
43, 49, and 50* . .	108	62, 63, and 64 . .	142	80, 81, and 82 . .	118
45, 46, and 47 . .	97	59, 60, and 61 . .	129	77, 78, and 79 . .	115
51, 52, and 53 . .	104	65, 66, and 67 . .	122	83, 84, and 85 . .	78

Although the triads comprising the climacterics exhibit a slight excess of deaths over the preceding and succeeding triads, the excess is not more considerable than in the case of other years to which no peculiar importance attaches. Thus the 33rd and 35th year, taken either separately or in connexion with the years immediately preceding or following, exhibit a similar excess. In the case of the three years immediately preceding that which comprises the 81st year, there is a great diminution in the number of deaths, but it is only such a decrease as must happen towards the end of life, when the number living at each age must of necessity very rapidly decrease. From all that has been now stated, it would appear that there is no sufficient reason for attaching to the climacteric years an unusual importance, though there seems to be a slight increase of deaths at or about these years.

Other interesting inquiries might be founded upon the facts employed in this essay, but these are reserved till similar facts more carefully verified have been brought together. Records of such facts are not wanting, and it is the intention of the author to turn them to account with as little delay as possible.

It will be seen that a more extensive use has been made of the materials afforded by the Peerage in the present communication than in an able paper published some years since by Mr. Edmonds,* and that the Baronetage has also been laid under contribution. Mr. Edmonds's inquiries were limited to the age of accession, periods of rule, and age of death of English peers, constituting the line of succession to 109 titles, and comprising 675 individuals. Of these 675 peers, the ages were specified in 432, those of the remainder were merely estimated. By making use of all the male members of the families of the peerage and baronetage whose ages are stated or can be calculated, I have brought together a much greater number of facts, and have examined one or two questions not discussed in Mr. Edmonds' paper.

Although the facts upon which the two papers are founded and the objects which they have in view are different, there is one point in which they admit of comparison. They both contain a table of the expectation, or mean duration, of life—that of Mr. Edmonds being calculated from a mean age, at intervals of 10 years, and the table contained in my own essay for every year of life from 18 years. It may be interesting to place side by side the results for the years admitting of comparison. This is done in the following table, in which the ages 15, 25, 35, and 50 are substituted for $14\frac{1}{2}$, $24\frac{1}{2}$, &c., occurring in Mr. Edmonds's table:—

Age.	Peerage (Edmonds's.)	Families of Peerage and Baronetage.
15	41.59	..
25	30.24	34.59
35	25.59	27.33
50	15.71	17.92

There is here a difference of four years at the age of 25, and of about two years at 35 and 50 respectively, in the expectation of life of the successors to the peerage, and of the families of the peerage and baronetage. This difference can scarcely be due to the mode of calculation, and therefore gives rise to a question of some interest. The families of the peerage and baronetage comprise a large proportion of persons urged by ordinary motives to wholesome exertion of body and mind, while the expectants of title may be fairly presumed to have a greater command of the means of self-indulgence, and less motive to those efforts, whether mental or bodily, by which men may be said to earn health and long life. It is not a little remarkable that the expectation of life among the male members of the families of the peerage and baronetage should exceed by from two to four years the expectation of life for the same age

* On the Duration of Life in the English Peerage, by T. R. Edmonds, Esq. *Lancet*, March 9, 1839.

among the successors to titles; and that the expectation of life in the former class falls short in a similar manner, and to a similar extent, of that of the entire kingdom and of the lives insured in the principal insurance offices. There is here a coincidence which cannot be overlooked, and a fair ground for answering the question already proposed in the affirmative. In the unlimited command of the means of dangerous self-indulgence, and in the absence of the common motives to wholesome exertion, the expectants of titles differ as much from the other members of noble families as these latter from the mass of mankind; and the effect in each case displays itself in broken health and a shorter average duration of life. When the duration of life shall be accurately ascertained for all the several classes of society, it will probably be found that the labouring man, placed above want but always dependent upon his own exertions, attains a higher average age, as he undoubtedly reaches a higher extreme, than his richer and more luxurious superior.

Comparison of the Sickness, Mortality, and prevailing Diseases among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports. By T. GRAHAM BALFOUR, M.D., Assistant Surgeon Grenadier Guards, &c.

[Communicated by Lieut.-Col. Tulloch, F.S.S., &c. &c., and read before the Statistical Society of London, 18th November, 1844.]

SINCE the paper by Colonel Tulloch on the sickness, mortality, and prevailing diseases among seamen and soldiers in the Mediterranean, was read to the Society (15th February, 1841), another volume of reports on the health of the Navy has been published, and an opportunity thereby afforded of extending the comparison to the two services when exposed to the influence of a tropical climate. The volume alluded to comprises—1st. The Cape of Good Hope, Western Africa, and the Mauritius; 2nd. The East India command; and 3rd. The Home and various Forces. The first of these cannot be made available for our present purpose, because climates so diametrically opposed are included together, and there are several circumstances which render it impossible to institute a fair comparison between the home force and the troops in the United Kingdom. We shall, therefore, confine our observations to that portion of the Navy employed in the East India command.

This command is of great extent, stretching from the tropic of Cancer to the 45th degree of south latitude, and from the 50th to the 150th degree of east longitude; the northern limit being the Isthmus of Suez, the southern the island of Tasmania. It includes all that part of the coast of Asia bounded by the Indian Ocean, the islands in that ocean, the British possessions of New Holland and Tasmania, and the islands in the North Pacific. The operations of the squadron, however, are principally directed to the shores of the Bay of Bengal, of the coast of Coromandel, and of the island of Ceylon, so that its service is chiefly intertropical. The only military force of which the sanitary condition can be brought into comparison with this portion of the Navy, by means of the Statistical Reports, are the European troops in Ceylon. The following table shows the amount of sickness, mortality, and invaliding in the two services respectively, from 1830 to 1836 inclusive:—

Years.	Naval Force.				Military Force.			
	Mean Strength.	Number Treated.	Total Deaths.	Number Invalided.	Mean Strength.	Number Treated.	Deaths from all Causes.	Number Invalided.
1830	1,621	2,520	32	25	2,192	3,148	94	8
1831	1,523	2,548	25	89	2,186	3,123	80	..
1832	2,204	3,019	33	82	2,056	3,009	204	5
1833	1,809	2,412	45	77	2,002	2,434	65	2
1834	2,134	3,259	46	44	2,060	2,723	91	8
1835	2,088	2,610	29	49	2,005	2,466	116	7
1836	1,563	2,013	14	69	2,089	2,875	77	22
Total .	12,942	18,381	224	435	14,590	19,778	727	52
Annual ratio per 1000 of mean strength.	..	1,420	17.3	33.6	..	1,356	49.8	3.6

From this table it appears that the amount of sickness has been greater in the naval than the military force, though not to such an extent as in the Mediterranean, while, on the contrary, the mortality has been considerably higher among the soldiers. Deducting the cases of wounds and injuries to which sailors are more liable from the nature of their duties, the sickness and mortality arising from disease alone will be found to be as follows:—

	Naval Force.		Military Force.	
	Admissions into Hospital.	Deaths.	Admissions into Hospital.	Deaths.
Total	18,381	224	19,778	727
Deduct arising from wounds and injuries .	2,522	28	2,086	51
Remain from diseases	15,859	196	17,692	676
Annual ratio per 1000 of mean strength .	1,225	15.1	1,213	46.2

It is remarkable how nearly the proportion of cases approximates after making this deduction for accidental injuries, the admissions among the sailors being 1225 per 1000 of the strength, and among the soldiers 1213. The deaths of the latter, however, amount to three times those of the former. All the circumstances already noticed as tending to reduce the mortality in the naval force in the Mediterranean, are in full operation here also, while the soldiers do not enjoy even the same advantages as in that command. Perhaps the most striking difference between the two services is in the amount of invaliding, which has been nine times as great in the Navy as in the Army. The effect of thus getting rid of chronic cases must be very obvious, for while of the military only 7 or 8 have been discharged in each year, 62 of the naval force were invalided annually out of a somewhat smaller number employed. The difference in the mode of invaliding, too, which was remarked upon as being so advantageous

to the sailor in the Mediterranean, exists even to a greater extent in this command, for while frequent opportunities occur of sending him home in one of Her Majesty's ships at an early period of his disease, the soldier is detained until a passage can be procured on board some freight ship or transport, however urgently his case may demand removal to a temperate climate. Much benefit must also be derived by the sailor from the frequent change of station in cruising about the coast, or being removed from one part of the command to another. This has been found of such advantage, particularly in diseases of the bowels, that occasionally a portion of a regiment in India, when in a sickly state, has been sent on a short cruise for the benefit of their health, and with the best results.

The period of a sailor's service in the East India command rarely exceeds four years, when his ship returns to England to be paid off, while the tour of service of a regiment in Ceylon is ten years; soldiers, therefore, remain much longer in the command, and, as a necessary consequence, their average age is greater than that of the sailors: but the military reports clearly prove that continued residence in a tropical climate diminishes the power of the constitution to resist the fatal effects of disease, and in such climates the mortality increases with age in a much more rapid ratio than in temperate regions, consequently the sailor derives a great advantage from the limited duration of his service. In illustration we may remark, that while the mortality of the troops generally was 49 per 1000, that of the men under 25 years of age amounted only to 24, while among those above 40 it was as high as 126 per 1000 of the strength.

The following table, compiled from the statistical reports in the same form as in the previous comparison by Colonel Tulloch, shows the relative prevalence and mortality of the different classes of diseases in each service:—

Classes of Diseases.	Naval Force.		Military Force.		Ratio per 1000 of Mean Strength.			
	Out of an aggregate Force of 12,942.		Out of an aggregate Force of 14,590.		Attacked.		Died.	
	Attacked.	Died.	Attacked.	Died.	Naval Force.	Military Force.	Naval Force.	Military Force.
Fevers	2,302	39	4,641	80	178	319	3·1	5·6
Eruptive Fevers	7	2	13	2				
Diseases of the Lungs	2,501	24	1,158	83				
Diseases of the Liver	381	19	730	73	29	50	1·5	5·
Diseases of the Stomach and Bowels	3,447	60	4,720	283	266	323	4·6	19·4
Epidemic Cholera	220	31	344	107	17	24	2·4	7·3
Diseases of the Brain	523	10	93	20	41	7	·8	1·4
Dropsies	10	1	77	13	1	5	·08	·9
Rheumatism	845	2	490	2	65	34	·16	·13
Syphilis	530	..	238	..	41	16	..	..
Gonorrhœa	270	..	371	..	21	26	..	..
Ulcers	860	..	1,507	1	67	103	..	·07
Erysipelas	42	..	26	..	3	2	..	..
All other diseases	3,921	8	3,281	12	303	225	·6	·8
Total	15,859	196	17,692	676	1,225	1,213	15·1	46·2

This table shows the influence of the principal classes of diseases on the two services; but to elucidate the subject still farther we shall briefly analyse these classes, and add a few observations on the chief points of difference.

Fevers.

Under this head are comprehended—

	Naval Force.		Military Force.	
	Out of an aggregate strength of 12,942.		Out of an aggregate strength of 14,590.	
	Attacked.	Died.	Attacked.	Died.
Intermittent	324	..	249	2
Remittent	422	17	482	60
Common continued	1,541	21	3,910	18
Typhus	15	1	..	..
Total	2,302	39	4,641	80
Annual ratio per 1000 of mean strength .	178	3	318	5.5

These diseases have been nearly twice as prevalent and fatal among the military as the sailors. The difference in the mortality has arisen from the much greater virulence of the cases of remittent fever, of which 1 in 8 died in the Army, while only 1 in 25 proved fatal in the Navy. This, probably, arises in some degree from the difference of the service; the sailor is considerably exposed to the causes of intermittent and remittent fevers when employed in wooding and watering, or in refitting, and we consequently find the amount of the former to be higher and of the latter type of fever nearly the same as among the soldiers; but as soon as he becomes ill he is taken on board ship, generally beyond the influence of the miasmata which have produced the disease, while the soldier, under similar circumstances, is taken into hospital in the immediate neighbourhood, and probably within the range of the operation of such cause. There can be no doubt that this removal of the patient from the locality where the fever has originated materially simplifies the case, and increases his chances of recovery. The difference in the *prevalence* of this class of diseases is caused by the larger number of cases of the common continued form among the military; but as the ratio of deaths is even lower than in the naval force, there seems good reason to believe that their excess arises in part, at least, from the admission of more cases of a trivial nature, resulting from exposure to the heat of the sun and the more frequent opportunities enjoyed by the soldier of indulging in the use of intoxicating liquors. This opinion is strengthened by the circumstance of 384 cases of headache and vertigo appearing in the Navy Report in the class of "Diseases of the Brain," while there are only 7 in the military, admissions from these causes among the soldiers having most probably been entered as ephemeral fever. It is very remarkable that if we take the diseases of this class collectively, their intensity will be found to be within a fraction the same in both services, being 1 death in 58 cases among the soldiers, and 1 in 59 among the sailors. The same fact was observed in the Mediterranean command, where the proportions were 1 in 57 and 1 in 56 respectively.

Eruptive fevers require no remark ; only 13 cases and 2 deaths from small-pox occurred in the military, and 6 cases, whereof 2 proved fatal, in the naval force. There were, besides, 1 case of scarlet fever in the latter and 10 of measles in the former, all of which recovered.

Diseases of the Lungs.

Under this head are comprised in the preceding table—

	Naval Force.		Military Force.	
	Out of an aggregate strength of 12,942.		Out of an aggregate strength of 14,590.	
	Attacked.	Died.	Attacked.	Died.
Inflammation of Lungs and Pleurisy	210	4	107	13
Spitting of Blood	20	2	52	6
Consumption	39	16	78	51
Catarrhs	2,211	2	818	13
Asthma, and difficulty of breathing	21	..	43	..
	2,501	24	1,158	83
Annual ratio per 1000 of mean strength	193	1.8	79	5.6

As in the Mediterranean command, this class of diseases is much more prevalent in the naval force. This excess in the attacks is confined to inflammation of the lungs and catarrhal affections, but particularly the last, the ratio of which among the sailors has amounted to 171 per 1000, while among the soldiers it has only been 56. This, as already shown, arises from the much greater exposure of sailors to the vicissitudes of the weather, and from their being compelled every night to turn out of their over-heated berths to take their turn of duty on deck, while the soldier is seldom on guard more than every fourth or fifth night, and remains on sentry only two hours at a time, instead of four. The soldier, moreover, is obliged to wear his great coat at night, while it seems left very much to the sailor's discretion to wear what clothing he pleases.

But from the more formidable and fatal diseases of the lungs, spitting of blood and consumption, the sailor enjoys a considerable exemption. It is known that the prevalence of consumption among the troops serving in the Peninsula of India* is lower than in any other British possession, and this exemption may, perhaps, extend to the naval force serving on that coast ; but though the difference may be thus, in part, accounted for, there seems no reason to doubt that the disease is really less common in the Navy than the Army. This, probably, results from the frequent change of station in the Navy, from the shorter exposure to the debilitating influence of a tropical climate, and from the less prevalence of fever, which is undoubtedly a frequent exciting cause in persons predisposed to tubercular disease.

Not only the actual mortality but the proportion of deaths to attacks is much lower by every disease comprised in this class among the naval force, a result towards which the more frequent opportunities of invaliding must materially contribute, the number discharged on account of pulmonic diseases having been 40, while among the military it only amounted to 14.

* This remark does not apply to the troops in Ceylon.

Diseases of the Liver.

Under this head are comprised in the preceding table :—

	Naval Force.		Military Force.	
	Out of an aggregate strength of 12,942.		Out of an aggregate strength of 14,590.	
	Attacked.	Died.	Attacked.	Died.
Inflammation of the Liver	356	19	715	73
Jaundice	25	..	15	..
Total	381	19	730	73
Annual ratio per 1000 of mean strength .	29	1.5	50	5.

This class of diseases is a source of considerably greater inefficiency and mortality than in the Mediterranean; the relative proportion of cases in the two services is nearly the same as in that command, but the mortality among the military is much higher. This, probably, is greatly influenced by the facility with which chronic cases in the Navy are sent home, and likewise by the shorter term of tropical service.

Diseases of the Stomach and Bowels.

Under this head are comprised :—

	Naval Force.		Military Force.	
	Out of an aggregate strength of 12,942.		Out of an aggregate strength of 14,590.	
	Attacked.	Died.	Attacked.	Died.
Inflammation of Stomach, Bowels, and } Peritoneum	49	3	60	8
Vomiting of Blood	4	..	4	2
Dysentery	872	55	2,620	265
Indigestion	374	1	57	1
Diarrhœa	1,295	1	994	1
Cholera Morbus . . . . .	..	..	162	4
Colic	479	..	687	1
Constipation	374	..	136	1
Total	3,447	60	4,720	283
Annual ratio per 1000 of mean strength .	266	4.6	323	19.4

This is the most prevalent and fatal class of diseases in the command. It is remarkable that while the total number of cases is much greater in both services, the relative proportion in each is exactly the same as in the Mediterranean, where it was found to be as 155 to 188, and in the East India command it has been as 266 to 323. But the sailors have enjoyed a much greater comparative exemption from mortality, the ratio having amounted to scarcely one-fourth of that among the soldiers. The difference will be found chiefly in the cases of dysentery, which constituted more than half the admissions by this class of diseases among the latter, and only one-fourth among the former; in the Navy, too, it assumed a milder form, 1 case in 16 having proved fatal, while of the soldiers attacked by it 1 in 10 died. But it must be borne in mind that

95 sailors were got rid of by invaliding on account of hepatic disease and dysentery, while only 2 soldiers were discharged for the same diseases. As dysentery appears to be an endemic disease in the East, the same remarks which were made regarding the greater prevalence of fevers among the soldiers must apply equally to it. Of the other diseases of this class, inflammation and colic are rather more common in the military force, while indigestion and constipation are much more prevalent in the naval; the latter difference arising most probably from the nature of their diet. Of late years, dysentery has been diminishing, both in prevalence and intensity, among the troops, owing apparently to certain improvements in their diet and accommodation.

Epidemic Cholera.

Naval Force.		Military Force.	
Out of an aggregate strength of 12,942.		Out of an aggregate strength of 14,590.	
Attacked.	Died.	Attacked.	Died.
220	31	344	107
Ratio 17	2·4	24	7·3

This disease has proved more prevalent and fatal among the military than among the sailors, and the proportion of deaths to cases has also been higher. Dr. Wilson, however, states his opinion that some cases of common cholera have been included, which seems probable, as in 1835 we find 21 admissions recorded and no deaths. Cholera being an endemic disease in India, although prevailing occasionally as an epidemic, it was naturally to be expected that the troops would suffer more from it as being more exposed to endemic influences. In 1832 it raged with great virulence at Colombo and Trincomalee, cutting off nearly one-fifth of the white troops at the latter station, while only 9 cases occurred among the sailors in the harbour there, of which 3 terminated fatally; and throughout the rest of the command there were but 15 attacks and 1 death recorded.

Diseases of the Brain.

Under this head are comprised:—

	Naval Force.		Military Force.	
	Out of an aggregate strength of 12,942.		Out of an aggregate strength of 14,590.	
	Attacked.	Died.	Attacked.	Died.
Inflammation of the Brain	7	1	6	2
Apoplexy	17	5	11	10
Paralysis	9	2	19	3
Headache and Vertigo	381	..	7	..
Epilepsy	73	1	15	2
Fatuity	14	1	..	..
Madness	9	..	15	..
Brain Fever of Drunkards	10	..	20	3
Total	523	10	93	20
Annual ratio per 1000 of mean strength . .	41	·8	7·	1·4

If from the cases in the Navy those of headache and vertigo be deducted, the proportion of attacks would scarcely amount to 11 per 1000, being very little higher than in the Army. From the very great disproportion in this particular, we are induced to believe that cases which in the Navy are recorded as headache and vertigo have in the military returns been entered as ephemeral fever; and if so, this would tend to equalize the admissions by that class of diseases. Of the other diseases of this class, epilepsy prevails to a much greater extent among the sailors than the soldiers. We are at a loss to assign a satisfactory reason for this; in the Army, fits of this nature generally result from excessive drinking; but if the prevalence of delirium tremens can be taken as a measure of the relative intemperance of the two services, the soldiers carry off the palm; and, considering the greater facilities they have for obtaining liquor, and the constant temptation to indulgence therein, this estimate is probably correct. It is worthy of remark, however, that in a country where spirits are so cheap as in Ceylon, with the inducements to drink arising from the heat, excessive perspiration, and want of occupation or means of amusement to fill their leisure hours, the attacks of delirium tremens have averaged only 14 in every 10,000 soldiers, and the deaths but 2 in the same number. The deaths from apoplexy are more numerous among the soldiers, although there have been fewer cases. It seems probable, therefore, that the larger proportion of fatal cases from this cause among the sailors in the Mediterranean was an accidental circumstance, and not, as conjectured by Colonel Tulloch, a peculiarity resulting from the confinement of shipboard.

Dropsies.

Under this head are comprised :—

	Naval Force.		Military Force.	
	Out of an aggregate strength of 12,942.		Out of an aggregate strength of 14,590.	
	Attacked.	Died.	Attacked.	Died.
Subcutaneous Dropsy	8	1	52	4
Abdominal Dropsy	1	..	15	5
Water on the Chest	1	..	1	1
Beri beri . . . . .	..	..	9	3
Total	10	1	77	13
Annual ratio per 1000 of mean strength .	1	·08	5·	·9

Dropsies, being commonly the sequel of fevers or hepatic disease, might naturally have been expected to be more prevalent among the military, who suffer to so much greater an extent from these than the sailor; while, moreover, the influence of the sea-breezes in restoring tone to the constitution of the latter, when convalescent from fever, must prove highly beneficial in warding off dropsical affections.

	Naval Force.		Military Force.	
	Out of an aggregate strength of 12,942.		Out of an aggregate strength of 14,590.	
	Attacked.	Died.	Attacked.	Died.
Rheumatism	845	2	490	2
Syphilis	530	..	238	..
Gonorrhœa	270	..	371	..
Ulcers	860	..	1,507	1
Erysipelas	42	..	26	..

These diseases present much the same features as in the Mediterranean, except ulcers, which were there found to be slightly more common in the Navy, but in this command have been considerably more numerous among the soldiers than the sailors. Part of this increase has been attributed to the bites of insects, particularly of a small leech which is very abundant among the dry leaves and bushes. Erysipelas has not prevailed to any extent, nor has it raged as an epidemic during the period under review. The relative proportion of cases in the Navy has been considerably less than it was found to be in the Mediterranean.

Among the "other diseases" two only seem to require observation, on account of the great diversity in their prevalence in the two services. In the Navy there have been recorded 2475 cases under the head of "Inflammation" (phlegmon), and 204 biles and abscesses, making a total of 2679; while in the Army only 900 admissions have taken place from the same causes. Most of the cases in the Navy have been superficial inflammations of the legs, seldom extending above the knee, and often terminating in small abscesses. This affection has been supposed to arise partly from the nature of the sailors' duty, especially cleaning the decks by washing and stoning; and it probably also depends on the stimulating quality of the salt water, with which their feet and legs are so constantly wet. The other class of cases alluded to is that of diseases of the eyes, of which 193 cases have occurred among the sailors; while they have amounted to 1092 among the soldiers. We are unable to assign any reason for this marked difference: there seem no good grounds for supposing these diseases to have been excited by unfair means, as their prevalence has been nearly the same in all the years included in the military reports, and they have been equally common in the native (Malay) and European regiments.

These reports confirm the impressions produced by the previous volume, of the high standard of health enjoyed by our Navy, because, even under all the disadvantages of tropical service, the mortality has amounted only to $1\frac{1}{2}$ per cent., including accidental and violent deaths. They also afford strong presumptive evidence of the advantages to be derived from limited service. Were the prospect of a termination to his engagement at a fixed and not very distant period held out to the soldier, it would doubtless restrain him from many of those reckless excesses which cannot but impair his health and render him more amenable to the attacks of disease; and it would also afford him the opportunity of quitting the service if he found himself unequal to the duties, or his general health was beginning to be impaired. The Army Statistical

Report further shows the advantage of attention to military hygiene, in the diminished admissions and deaths from dysentery which have followed the adoption of various improvements in diet and barrack accommodation. This branch of medical science has unfortunately been too much neglected; but we trust that one effect of these investigations will be to draw attention to this important subject, and impress upon the authorities the great advantages to be derived from the adoption of judicious sanitary measures.

PROCEEDINGS OF THE STATISTICAL SOCIETY OF LONDON.

Second Ordinary Meeting, 1844-5, Monday, 16th December, 1844.

The following gentlemen were elected :—

John Bright, Esq., M.P.
James Blyth, Esq.

Arthur Parish, Esq., B.A.
Major-General John Briggs.

Captain Washington, R.N., was proposed a candidate for admission into the Society.

A paper by Dr. Guy was read, "On the Duration of Life among the Families of the Peerage and Baronetage of the United Kingdom." (See p. 69.)

Third Ordinary Meeting, 1844-5, Monday, 20th January, 1845.

John Melville, Esq., and J. R. Martin, Esq., were appointed Auditors of the Society's accounts for 1844, in conjunction with Dr. Bowring, M.P., appointed by the Council.

The following gentlemen were formally admitted Fellows :—

Julius Jeffreys, Esq.

Alfred Rhodes Barstow, Esq.

Captain John Washington, R.N., was elected a Fellow of the Society.

The following gentlemen were proposed as candidates for admission into the Society :—

Timothy Rhodes Cobb, Esq.

Captain Donatus O'Brien.

R. P. Griffith, Esq.

A paper by Colonel Sykes, Vice President, was read, entitled, "Statistics of the Educational Institutions of the East India Company in India."

Third Ordinary Meeting, 1844-5, Monday, 17th February, 1845.

The Report of the Auditors for 1844 was read.

The following gentlemen were elected :—

Timothy Rhodes Cobb, Esq.

Captain Donatus O'Brien.

R. P. Griffith, Esq.

The following gentlemen were proposed as candidates for admission into the Society :—

William Gillart, Esq.

William Lister, Esq.

Thomas Stevenson, Esq.

Richard Spry, Esq.

Thomas Willis, M.D.

A paper by Joseph Fletcher, Esq., Hon. Sec., was read, entitled, "A Statistical Outline of the Present System of Supplying the Metropolis with Water."

STATE OF THE PUBLIC HEALTH IN THE LAST QUARTER.

"The quarterly returns are obtained from 115 districts, sub-divided into 576 Sub-districts. *Thirty-four* districts are placed under the metropolis, and the remaining 81 districts comprise, with some agricultural districts, the principal towns and cities of England. The population was 6,578,912 in 1841."

The number of deaths registered in the 115 districts for the Autumn Quarter ending December amounted to 43,958; being an increase of 3,160 above the yearly average of five years, and 3276 over that of the five Autumns of 1833—42. The total deaths in the year amounted to 167,708; or to 2·4 per cent., making a correction for increase of the population.

13,656 deaths were registered in the metropolis for the quarter, and 50,423 for the year, or 2·6 per cent. In the week ending December 21st, 1,393 deaths were recorded; being an excess of 403 above the average of the five Autumns, and the greatest number registered in any one week since the Registration Act came into operation. Small-pox and scarlatina have been epidemic in the metropolis. Erysipelas and childbed fever have also been more than usually fatal: 10 deaths from that rare disease diabetes were registered. The registrars in the provinces state the excess of deaths to have occurred principally from small-pox, measles, scarlatina and typhus; a great number of deaths have occurred from pulmonary diseases, and been referred to old age. 117 deaths from *Small-pox* took place at Blackburn; 81 without vaccination. The registrars throughout the country state that the deaths from small-pox rarely occur after vaccination performed effectually by qualified medical practitioners.

In Dudley 11 persons lost their lives from an explosion in a coal-pit; at Wrexham 5 persons were killed by an explosion of fire-damp. In the district of Oldham 20 persons were killed by the falling of a fire-proof mill.

Districts in which the Mortality was above the average of five Autumn quarters:— North, South, East and West districts of the metropolis, Brighton, Isle of Wight, Norwich, Winchester, Yarmouth, Plymouth, Penzance, Shrewsbury, Liverpool, West Derby, Blackburn, Chorlton, York, and Merthyr Tydfil.

Districts in which the Mortality was below the average of five Autumn quarters:— Lincoln, Preston, Bolton, Wigan, Sunderland, Gateshead, Newcastle-on-Tyne, and Newtown.

The mean height of the barometer (corrected) was 29·713 inches at Greenwich; the mean temperature of the air 42°·4; the mean dew point 39°·4; the mean temperature of the water of the Thames 44°·8. The highest temperature of the air was 65°·9, the lowest 21°·6. The thermometer never rose higher than 87°·2 in the sun; nor sunk lower than 7°·9 on the grass. The mean temperature of the air was 2°·6 below the average of 25 years; it was only higher than the average on the 1st, 7th, 8th, week of the quarter; and in the three first weeks of December was so low as 31°·7, 28°·2, 37°·0, being 10°·2, 11°·5, and 3°·4 below the average; the deaths registered in the metropolis were 954, 1150, and 1326 (exclusive of sudden and violent deaths).

The rain was 9·22 inches; the greater part of which fell in the latter part of October, and in November; the wind in the coldest week was N.N.E., and its average daily horizontal movement during the quarter was 123 miles.

The meteorological observations from the country, although not yet taken upon an uniform plan, are in many respects highly interesting; and will, it may be hoped, ultimately end in a connected scheme of systematic observation, with comparable instruments all over the empire. In the mean time meteorologists are recommended to consult the last volume of the Greenwich observations, drawn up by the Astronomer Royal.

MORTALITY OF THE COUNTRY.

Quarterly Table of the Mortality in 115 of the Districts of England (including the principal Towns) showing the Number of Deaths registered in the Six Years, the Average Number of Deaths in the Five Autumns, 1838-42, and the Number of Deaths in the Autumn Quarter of 1844, ending 31st December, —(Continued from p. 362 of vol. vii.)

DISTRICTS.	Popu- lation 1841.	1838-42		Deaths in the Autumn Quarter, ending Dec. 1. 1844.	DISTRICTS.	Popu- lation 1841.	1838-42		Deaths in the Autumn Quarter ending Dec. 31. 1844.
		Quarterly-Average*					Quarterly-Average*		
		Of Five Years.	Of Five Autmns.				Of Five Years.	Of Five Autmns.	
<i>Metropolis.†</i>					<i>North Midland Division.</i>				
West Districts . . .	301,326	1,751	1,695	1,987	Leicester . . .	50,932	350	370	387
North Districts . . .	366,303	2,112	2,107	2,353	Lincoln . . .	36,110	134	188	161
Central Districts . . .	374,759	2,395	2,385	2,491	Nottingham . . .	53,080	361	366	381
East Districts . . .	393,247	2,640	2,683	2,999	Basford . . .	59,634	310	316	344
South Districts . . .	479,469	2,850	2,945	3,826	Derby . . .	35,015	217	219	210
Total . . .	1,915,104	11,749	11,815	13,656	<i>North Western Division.</i>				
<i>South Eastern Division.</i>					Stockport . . .	85,672	585	548	474
Maidstone . . .	33,210	181	181	204	Macclesfield . . .	56,018	370	350	344
Brighton . . .	46,742	251	266	393	Great Bough- ton (including Chester) . . .	49,085	305	304	263
Isle of Wight . . .	42,547	182	175	235	Liverpool . . .	223,054	1,875	1,962	2,131
Portsea Island . . .	53,036	297	326	341	West Derby (adjoining Liverpool) . . .	88,652	509	575	814
Winchester . . .	23,044	116	110	153	Blackburn . . .	75,091	465	451	578
Windsor . . .	20,502	97	105	93	Preston . . .	77,189	513	493	429
<i>South Midland Division.</i>					Rochdale . . .	60,577	396	378	329
St. Albans . . .	17,051	83	84	94	Bury . . .	77,496	506	459	445
Wycombe . . .	34,150	187	168	193	Bolton . . .	97,519	668	671	621
Oxford . . .	19,701	102	105	103	Wigan . . .	66,032	434	434	370
Northampton . . .	23,103	168	161	181	Prescott . . .	43,739	260	250	237
Bedford . . .	31,767	171	167	203	Chorlton . . .	93,736	591	574	709
Cambridge . . .	24,453	144	141	132	Manchester . . .	192,408	1,597	1,612	1,653
<i>Eastern Division.</i>					Salford . . .	70,228	530	534	525
Colchester . . .	17,790	113	120	122	Ashton . . .	173,964	1,196	1,112	1,175
Ipswich . . .	25,254	150	151	135	<i>York Division.</i>				
Norwich . . .	61,846	396	374	465	Sheffield . . .	85,076	598	631	600
Yarmouth . . .	24,031	118	119	164	Huddersfield . . .	107,140	514	502	537
<i>South Western Division.</i>					Halifax . . .	109,175	566	569	596
Devizes . . .	22,130	115	114	108	Bradford . . .	132,164	794	788	833
Dorchester . . .	23,380	107	97	95	Leeds . . .	168,667	1,107	1,124	1,105
Exeter . . .	31,333	192	180	194	Hull . . .	41,130	289	312	314
St. Thomas . . .	47,105	214	210	211	York . . .	47,779	274	263	336
Plymouth . . .	36,527	208	217	279	<i>Northern Division.</i>				
Redruth . . .	48,062	249	265	310	Sunderland . . .	56,226	369	363	270
Penzance . . .	50,100	236	258	366	Gateshead . . .	38,747	238	242	214
Bath . . .	69,232	423	411	420	Tynemouth . . .	55,625	315	309	274
<i>Western Division.</i>					Newcastle-on- Tyne . . .	71,850	487	491	375
Bristol . . .	64,298	476	463	524	Carlisle . . .	36,084	213	224	204
Clifton . . .	66,233	362	344	385	Cockermouth . . .	35,676	173	163	164
Stroud . . .	38,920	192	170	190	Kendal . . .	34,694	184	177	160
Cheltenham . . .	40,221	221	221	219	<i>Welsh Division.</i>				
Hereford . . .	33,646	188	192	187	Abergaveuoy . . .	50,834	315	274	273
Shrewsbury . . .	21,529	137	129	166	Pont-y-pool . . .	25,037	147	120	124
Worcester . . .	27,130	171	166	150	Merthyr Tydvil . . .	52,864	343	303	460
Kidderminster . . .	29,408	149	144	190	Newtown . . .	25,958	129	116	96
Dudley . . .	86,028	515	526	697	Wrexham . . .	39,542	217	200	181
Walsall . . .	34,274	202	213	179	Holywell . . .	40,787	204	210	223
Wolverhampton . . .	80,722	508	495	491	Anglesey . . .	38,105	154	142	155
Wolstanton . . .	32,669	203	199	208	Total exclu- sive of the Metropolis . . .	4,663,808	29,049	28,867	30,302
Birmingham . . .	138,187	901	903	963	Grand Total . . .	6,578,912	40,798	40,682	43,958
Aston . . .	50,928	279	278	327					
Coventry . . .	31,028	191	211	241					

* The deaths in the Metropolis for the years 1840-1-2 have been derived from the weekly tables, the Returns for each year comprising 52 weeks, or 364 days. The last quarter in the metropolis ended Dec. 28, 1844. The returns from other places are for the years ending December 31, and the quarter ending Dec. 30.

† Wandsworth District is included in the return for the Metropolis.

MORTALITY OF THE METROPOLIS.

A Table of the Mortality in the Metropolis, showing the Number of Deaths from all Causes, registered in the 13 Weeks ending 28th December, 1844.

CAUSES OF DEATH.	Quarterly Average of Deaths in the Five Autumns of 1839-43.		Deaths in the Autumn Quarter ending Dec. 28, 1844.	CAUSES OF DEATH.		Quarterly Average of Deaths in the Five Autumns of 1839-43.	Deaths in the Autumn Quarter ending Dec. 28, 1844.
ALL CAUSES	12,239	13,636		III. Cephalitis		141	160
SPECIFIED CAUSES	12,143	13,619		Hydrocephalus		416	372
I. Zymotic (or Epidemic, Endemic, and Contagious) Diseases	2,355	2,991		Apoplexy		235	311
SPORADIC DISEASES.				Paralysis		213	235
II. Dropsy, Cancer, and other Diseases of uncertain or variable Seat	1,419	1,338		Convulsions		684	699
III. Diseases of the Brain, Spinal Marrow, Nerves, and Senses	1,884	2,001		Tetanus		5	4
IV. Diseases of the Lungs and of the other Organs of Respiration	3,853	4,265		Chorea		1	6
V. Diseases of the Heart and Blood Vessels	226	474		Epilepsy		47	54
VI. Diseases of the Stomach, Liver, and other Organs of Digestion	819	854		Insanity		15	14
VII. Diseases of the Kidneys, &c.	73	101		Delirium Tremens		21	25
VIII. Childbirth, Diseases of the Uterus, &c.	134	173		Disease of Brain, &c.		107	121
IX. Rheumatism, Diseases of the Bones, Joints, &c.	69	94		IV. Laryngitis		7	17
X. Diseases of the Skin, Cellular Tissue, &c.	18	16		Quinsey		22	35
XI. Old Age	913	898		Bronchitis		178	331
XII. Violence, Privation, and Intemperance	318	414		Pleurisy		22	30
				Pneumonia		1,317	1,405
I. Small Pox	214	571		Hydrothorax		61	86
Measles	389	385		Asthma		329	366
Scarlatina	552	872		Phthisis or Consumption		1,731	1,676
Hooping Cough	386	277		Disease of Lungs, &c.		187	256
Croup	110	102		V. Pericarditis		9	35
Thrush	59	52		Aneurism		9	10
Diarrhoea	122	129		Disease of Heart, &c.		267	429
Dysentery	40	34		VI. Teething		219	171
Cholera	7	5		Gastritis		208	15
Influenza	21	32		Enteritis		17	184
Ague	5	14		Peritonitis		74	29
Remittent Fever	5	10		Tabes Mesenterica		7	101
Typhus	360	385		Worms		12	11
Erysipelas	77	106		Ascites		22	24
Syphilis	7	17		Ulceration (of Intestines, &c.)		24	20
Hydrophobia	1	..		Hernia		27	27
II. Inflammation	82	8		Colic or Ileus		4	29
Hæmorrhage	39	40		Intussusception		7	8
Dropsy	457	337		Stricture		5	6
Abscess	40	30		Hamatemesis		55	9
Mortification	57	61		Disease of Stomach, &c.		2	52
Purpura	3	6		Disease of Pancreas		15	1
Scrofula	26	37		Hepatitis		27	23
Carcinoma	111	157		Jaundice		95	34
Tumor	19	4		Disease of Liver, &c.		1	108
Gout	12	10		Disease of Spleen		7	2
Atrophy	94	164		VII. Nephritis		3	5
Debility	263	281		Ischuria		4	1
Malformations	15	17		Diabetes		5	10
Sudden Deaths	199	186		Cystitis		3	4
				Stone		8	9
				Stricture		43	12
				Disease of Kidneys, &c.		99	60
				VIII. Childbirth		3	121
				Paramenia		2	..
				Ovarium Dropsy		29	9
				Disease of Uterus, &c.		1	43
				IX. Arthritis		34	..
				Rheumatism		34	43
				Disease of Joints, &c.		1	51
				X. Carbuncle		1	1
				Phlegmon		7	2
				Ulcer		4	8
				Fistula		5	1
				Disease of Skin, &c.		913	4
				XI. Old Age		8	898
				XII. Intemperance		7	10
				Privation		303	10
				Violent Deaths		96	394
				Causes not specified			37

PRICES OF PROVISIONS,
Average Contract Prices of the Provisions and Fuel supplied to the Workhouses

Districts marked out by the Registrar-General, and Central Unions contained therein.	Average Weekly Cost per Head of In-door Paupers.						Wheaten Flour per Stone.	Wheaten Bread per 4 lbs.	Meal—Peck, Beef & Mutton per lb.	Salt Butter per lb.	Cheese per lb.		Potatoes.
	Fuel.	Clothing.	Food and Clothing.										
<i>Metropolis.</i>	s. d.	d.	s. d.	s. d.	s. d.								
East London	2 9 $\frac{1}{4}$	5 $\frac{1}{4}$	3 2 $\frac{1}{2}$	2 1	6	4 $\frac{1}{4}$	6 $\frac{1}{4}$	4 $\frac{1}{4}$	6 $\frac{1}{4}$	4 0 cwt.			
Holborn	2 1 $\frac{1}{2}$	2 $\frac{1}{2}$	2 4	2 0	6 $\frac{1}{4}$	4 $\frac{1}{4}$			6	3 $\frac{3}{4}$	3 6 cwt.		
<i>South Eastern Counties.</i>													
Maidstone	2 4	3 $\frac{1}{2}$	2 7 $\frac{1}{2}$	2 0	5	4 $\frac{1}{4}$	6 $\frac{3}{4}$	4 $\frac{1}{2}$	4 $\frac{1}{2}$	2 0 cwt.			
Portsea Island	2 5 $\frac{1}{2}$	8	3 1 $\frac{1}{2}$	2 1 $\frac{1}{2}$	6	5 $\frac{1}{2}$	7	3	3 9 cwt.				
<i>South Midland Counties.</i>													
Northampton	2 11	5 $\frac{1}{4}$	3 4 $\frac{1}{4}$	2 1	5 $\frac{1}{2}$	4 $\frac{1}{2}$	8 $\frac{1}{2}$	6	..				
Cambridge	2 2 $\frac{1}{4}$	3 $\frac{1}{2}$	2 5 $\frac{3}{4}$	2 3	5 $\frac{3}{4}$	4 $\frac{1}{4}$	10	4 $\frac{1}{2}$..				
<i>Eastern Counties.</i>													
Ipswich	2 2 $\frac{1}{4}$	5 $\frac{1}{4}$	2 7 $\frac{1}{2}$	1 11 $\frac{3}{4}$	6	5 $\frac{1}{2}$	9 $\frac{1}{2}$	5 $\frac{3}{4}$..				
<i>South Western Counties.</i>													
Devizes	2 0 $\frac{1}{2}$	3 $\frac{1}{4}$	2 3 $\frac{3}{4}$	2 2	5 $\frac{3}{4}$	3	..	3 $\frac{3}{4}$	1 11 bshl.				
Penzance	2 0 $\frac{1}{8}$	3 $\frac{1}{2}$	2 4	2 3 $\frac{1}{2}$	6	4 $\frac{1}{2}$	7 $\frac{1}{2}$	10	2 3 $\frac{1}{2}$ cwt.				
Bath	1 10 $\frac{1}{2}$	2	2 0 $\frac{1}{2}$	1 9	5	3 $\frac{3}{4}$	7 $\frac{1}{2}$	3	7 0 sack				
<i>Western Counties.</i>													
Stroud	1 11	1 $\frac{3}{4}$	2 0 $\frac{3}{4}$	1 9	5 $\frac{1}{2}$	4	8 $\frac{1}{2}$	3	5 0 bag				
Wolverhampton	2 5 $\frac{3}{4}$	5 $\frac{1}{4}$	2 11	2 0	6 $\frac{1}{4}$	4 $\frac{1}{2}$	9	5	5 9 bag				
									0 9 score				
<i>North Midland Counties.</i>													
Derby	1 10 $\frac{3}{4}$	..	1 10 $\frac{3}{4}$	2 0	6	4 $\frac{3}{4}$	12	5 $\frac{1}{2}$	2 6 cwt.				
<i>North Western Counties.</i>													
Macclesfield	2 0 $\frac{1}{2}$	3 $\frac{1}{2}$	2 4	1 9	..	3 $\frac{1}{2}$	10	6	9 0 load				
Bolton*	1 7 $\frac{3}{4}$	3 $\frac{3}{4}$	1 11 $\frac{1}{2}$	1 8	5	4	7 $\frac{1}{2}$	4 $\frac{3}{4}$	6 3 load				
Prescot	1 9	1 $\frac{3}{4}$	1 10 $\frac{3}{4}$	..	6	3 $\frac{3}{4}$	8	..	2 6 bshl.				
									90 lbs.				
<i>North Eastern Counties.</i>													
Sheffield*	2 5	7	3 0	1 10	..	4	..	7	5 4 load				
<i>Halifax*</i>	1 10 $\frac{3}{4}$	1 $\frac{3}{4}$	2 0 $\frac{1}{2}$	2 4	5	4 $\frac{3}{4}$	8 $\frac{1}{2}$	..	0 6 load				
Sculcoates	2 2 $\frac{1}{4}$	8 $\frac{3}{4}$	2 11	..	5	4 $\frac{1}{2}$	12	..	0 6 peck				
<i>Northern Counties.</i>													
Gateshead	1 11 $\frac{1}{2}$	6 $\frac{3}{4}$	2 6 $\frac{1}{4}$	2 1	5	4 $\frac{1}{2}$	9	6 $\frac{1}{2}$	2 10 cwt.				
Kendal	1 9	5 $\frac{1}{4}$	2 2 $\frac{1}{4}$	1 10 $\frac{1}{2}$	..	3 $\frac{1}{2}$	9 $\frac{3}{4}$	5 $\frac{3}{4}$	0 2 $\frac{3}{4}$ st.				
<i>Wales.</i>													
Pembroke	1 5 $\frac{1}{2}$	1 $\frac{3}{4}$	1 7 $\frac{1}{4}$	1 10 $\frac{1}{2}$	7	4 $\frac{1}{2}$	7 $\frac{1}{2}$	2 $\frac{1}{4}$	2 6 cwt.				
St. Asaph	1 9	3 $\frac{1}{2}$	2 0 $\frac{1}{2}$	2 4	6	4	8 $\frac{3}{4}$	5 $\frac{1}{2}$	4 9 hob.				

* Lady-Day quarter.

FUEL, &c.—(Continued from p. 275 of vol. vii.)

of the following Unions, during the Quarter ended at Midsummer, 1844.

Peas per quart.	Oatmeal per lb.	Candles per 12 lbs.	Yellow Soap.	Coals per Ton.	Tea per lb.	Sugar per lb.	Milk per quart.	Miscellaneous Articles.
<i>d.</i>	<i>d.</i>	<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	<i>d.</i>	<i>d.</i>	
$2\frac{1}{2}$	$2\frac{1}{4}$	5 0	40 0 cwt.	16 0	3 5	6	$2\frac{1}{2}$	Table Beer, 5 <i>s.</i> barrel.
$2\frac{2}{3}$	$2\frac{1}{2}$	5 6	41 0 cwt.	17 9	3 3	$5\frac{3}{4}$	..	Porter, 3 <i>l.s.</i> 6 <i>d.</i> barrel.
..	3	5 6	..	20 9	3 8	$6\frac{1}{2}$	$1\frac{1}{2}$	Suet, 5 <i>d.</i> lb. . . .
$\frac{1}{2}$	2	5 2	42 0 cwt.	15 6	..	..	..
..	3	5 6	48 0 cwt.	16 6	4 0	7	$1\frac{3}{4}$	Rice, 18 <i>s.</i> 8 <i>d.</i> cwt.
3	$1\frac{1}{2}$	5 3	46 0 cwt.	23 9	3 8	6	..	Suet, 4 <i>s.</i> stone.
$2\frac{1}{4}$	$3\frac{1}{4}$	5 0	42 0 cwt.	18 6	..	..	..	. . . .
$2\frac{1}{4}$	$3\frac{1}{2}$	5 6	0 $4\frac{1}{2}$ lb.	18 6	4 0	7	..	Bacon, $4\frac{1}{2}$ <i>d.</i> lb. Beer, 7 <i>d.</i> gall.
$2\frac{1}{4}$	3	5 3	47 0 cwt.	14 0	3 10	$6\frac{3}{4}$	..	Fish, 12 <i>s.</i> 6 <i>d.</i> cwt.
$2\frac{1}{4}$	$3\frac{3}{4}$	5 3	38 0 cwt.	14 0	3 6	6	..	Rice, 17 <i>s.</i> cwt.
2 ⁶	..	5 9	39 0 cwt.	16 0	..	..	..	{ Groats, 19 <i>s.</i> 6 <i>d.</i> cwt. Rice Flour,
2 $\frac{1}{4}$	$2\frac{3}{4}$	5 0	0 $4\frac{1}{2}$ lb.	6 0	3 4	$6\frac{1}{2}$	1	{ 18 <i>s.</i> cwt. Bacon, 5 <i>d.</i> lb.
}								Suet, $4\frac{1}{4}$ <i>d.</i> lb. Rice, $1\frac{3}{4}$ <i>d.</i> lb.
2	$1\frac{1}{2}$	5 6	44 0 cwt.	11 6	4 0	7	..	Rice, 18 <i>s.</i> cwt.
$2\frac{3}{4}$	$2\frac{1}{2}$	5 6	0 $4\frac{1}{2}$ lb.	9 2	..	..	..	Treacle, $2\frac{3}{4}$ <i>d.</i> lb.
$2\frac{1}{2}$	1	4 9	44 5 cwt.	6 4	..	..	1	Bacon, $4\frac{3}{4}$ <i>d.</i> per lb.
}	2	$2\frac{1}{2}$	41 0 cwt.	9 4	..	..	2	{ Treacle, 3 <i>s.</i> 3 <i>d.</i> stone. Rice,
2	$1\frac{1}{4}$	5 3	44 8 cwt.	6 $1\frac{1}{2}$	4 $2\frac{1}{2}$	$6\frac{1}{2}$	$1\frac{3}{4}$	{ 2 <i>s.</i> 2 <i>d.</i> stone. Coffee, 1 <i>s.</i> 9 <i>d.</i> lb.
								Tobacco, 3 <i>s.</i> 6 <i>d.</i> lb. Porter, 11 <i>d.</i>
								gal. Salt, 3 <i>d.</i> st. Bacon, 2 <i>d.</i> lb.
2	1	5 0	48 0 cwt.	9 6	4 5	7	..	. . . .
$2\frac{1}{4}$	$1\frac{1}{2}$	5 6	{ 5 3 stone of 12 lbs. }	18 6	..	..	1	. . . .
2	3	5 6	46 0 cwt.	4 0	4 0	$6\frac{1}{2}$	..	Coffee, 1 <i>s.</i> 6 <i>d.</i> per lb.
..	$1\frac{1}{4}$	5 9	5 6 stone	12 11	4 2	$6\frac{3}{4}$	$0\frac{3}{4}$	Coffee, 1 <i>s.</i> 6 <i>d.</i> lb. Rice, 2 <i>s.</i> st.
$2\frac{1}{2}$	3	6 3	0 5 lb.	14 2	4 0	7	1	. . . .
$2\frac{2}{3}$	3	5 6	0 $4\frac{1}{4}$ lb.	..	3 6	$6\frac{3}{4}$	..	Rice, $2\frac{1}{4}$ <i>d.</i> lb.

REVENUE.

An Abstract of the Net Produce of the Revenue of Great Britain, in the Years and Quarters ended 5th January, 1844 and 1845; showing the Increase or Decrease thereof.—(Continued from p. 365 of vol. vii.)

	Years ended Jan. 5.			
	1844	1845	Increase.	Decrease.
	£.	£.	£.	£.
Customs	19,073,219	20,378,672	1,305,453	..
Excise	11,794,807	12,160,111	365,304	..
Stamps	6,426,155	6,611,390	185,235	..
Taxes	4,190,486	4,216,488	26,002	..
Property Tax	5,249,260	5,191,596	..	57,664
Post Office	592,000	675,000	83,000	..
Crown Lands	117,500	155,000	37,500	..
Miscellaneous	1,634,741	693,630	..	941,111
Total Ordinary Revenue	49,078,163	50,081,887	2,002,494	998,775
Imprest and other Monies	163,528	278,138	109,610	..
Repayments of Advances	825,247	875,513	50,266	..
Total Income . . .	50,071,943	51,235,538	2,162,370	998,775
Deduct Decrease			998,775	
Increase on the Year			1,163,595	

	Quarters ended Jan. 5.			
	1844	1845	Increase.	Decrease.
	£.	£.	£.	£.
Customs	4,766,968	4,902,135	135,167	..
Excise	3,030,771	3,230,940	200,169	..
Stamps	1,523,653	1,601,658	78,005	..
Taxes	1,868,857	1,880,490	11,633	..
Property Tax	454,415	487,541	33,126	..
Post-Office	143,000	146,000	3,000	..
Crown Lands	30,000	30,000	20,000	..
Miscellaneous	11,917	9,190	..	2,727
Total Ordinary Revenue	11,829,581	12,307,954	481,100	2,727
Imprest and other Monies	50,136	146,759	96,623	..
Repayments of Advances	332,060	250,980	..	81,080
Total Income . . .	12,211,777	12,705,693	577,723	83,807
Deduct Decrease			83,807	
Increase on Quarter			493,916	

Consolidated Fund Operations.—The total income brought to this account in the quarter ended 5th January, 1845, was 11,707,725*l.*; the total charge upon it was 9,062,458*l.*; leaving a surplus of 2,645,267*l.* The amount of Exchequer Bills issued to meet the charge on the Consolidated Fund for the quarter ended October 10, 1844, and paid off out of the growing produce of that fund for the quarter ended 5th January, 1845, after deducting 400,000*l.*, paid off out of the Sinking Fund, was 2,128,262*l.* The probable amount of Exchequer Bills required to meet the charge on the Consolidated Fund in the quarter ended January 5, 1845, is stated at 2,095,929*l.*

CORN.

Average Prices of Corn per Imperial Quarter in England and Wales, with the Rate of Duty on Foreign and Colonial Wheat, during each Week of the Last Quarter of 1844; together with the Average Prices for the whole Quarter.—(Continued from p. 366 of vol. vii.)

Returns received at the Corn Office, 1844.	Wheat.		Barley.	Oats.	Rye.	Beans.	Peas.	Date of Certificates of preceding Prices, regulating Duties for the Week ensuing.	Duties on Wheat per Quarter.	
	Weekly Average.	Aggregate Average of six Weeks regulating Duty.	Weekly Average.	Weekly Average.	Weekly Average.	Weekly Average.	Weekly Average.		From Foreign Countries.	From British Possessions out of Europe.
Weeks ended										
1844	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.	s. d.
Oct 5 .	46 1	47 1	33 9	20 6	37 5	36 8	33 5	Oct. 3	20 0	5 0
12 .	46 3	46 4	33 6	20 6	37 10	36 11	34 0	10	20 0	5 0
19 .	46 3	45 11	34 0	20 8	38 0	36 9	33 10	17	20 0	5 0
26 .	46 0	45 11	34 9	20 11	39 3	37 0	34 2	24	20 0	5 0
Nov. 2 .	46 0	46 1	35 7	21 2	37 3	36 8	35 1	31	20 0	5 0
9 .	46 3	46 2	36 1	21 6	34 6	37 11	34 7	Nov. 7	20 0	5 0
16 .	46 4	46 2	35 9	21 9	34 2	34 4	35 7	14	20 0	5 0
23 .	45 10	46 1	35 2	21 8	30 9	38 6	36 2	21	20 0	5 0
30 .	45 4	45 11	35 1	21 8	32 2	38 0	35 11	28	20 0	5 0
Dec. 7 .	45 2	45 10	34 9	21 10	31 2	37 5	36 4	Dec. 5	20 0	5 0
14 .	45 1	45 8	34 5	21 11	32 0	36 9	36 1	12	20 0	5 0
21 .	45 3	45 6	34 2	21 10	32 0	35 11	35 4	19	20 0	5 0
28 .	45 6	45 4	34 3	20 10	31 9	35 7	35 5	26	20 0	5 0
Average of the Quarter }	45 9	..	34 8	21 3	34 5	37 1	35 0	..	..	..

Foreign and Colonial Wheat and Wheat-Flour Imported in each of the Months ended 10th October, 5th November, and 5th December, 1844; the Quantities upon which Duties have been paid for Home Consumption during the same Months; and the Quantities remaining in Bond at the close of them.—(Continued from p. 366 of vol. vii.)

WHEAT.

Months ended	Imported.			Paid Duty.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1844	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.
10th Oct.	77,323 0	7,889 6	85,212 6	20,568 2	8,335 0	28,903 2	365,920 0	185 3	366,105 3
5th Nov.	25,893 5	492 3	26,386 0	17,575 5	516 4	18,092 1	363,210 6	161 2	363,372 0
5th Dec.	20,865 7	1,376 5	22,242 4	14,536 6	1,380 0	11,916 6	364,120 1	157 7	364,278 0

WHEAT FLOUR.

Months ended	Imported.			Paid Duty.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1844	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.
10th Oct.	29,281 2	178,554 0	207,836 0	2,159 1	166,147 0	168,306 2	278,016 3	18,899 1	296,916 0
5th Nov.	14,083 2	41,077 3	55,161 2	2,774 1	46,597 1	49,371 3	257,848 2	13,379 3	271,228 0
5th Dec.	6,161 1	41,413 3	47,575 0	1,770 1	40,164 3	41,935 0	250,993 3	14,629 0	265,622 0

CURRENCY.

BANK OF ENGLAND.

An Account, pursuant to the Act of the 7th and 8th Victoria, c. 32, for the Weeks ended on Saturday the 7th September, 5th October, 2nd November, 30th November, and 28th December, 1844.—(Continued from p. 367 of vol. vii.)

ISSUE DEPARTMENT.

	Weeks ended, 1844.				
	7th Sept.	5th Oct.	2nd Nov.	30th Nov.	28th Dec.
	£.	£.	£.	£.	£.
Notes issued	28,351,295	28,032,905	27,493,580	27,786,190	28,200,165
Government Debt	11,015,100	11,015,100	11,015,100	11,015,100	11,015,100
Other Securities	2,984,900	2,984,900	2,984,900	2,984,900	2,984,900
Gold Coin and Bullion	12,657,208	12,384,819	11,875,969	12,192,579	12,606,554
Silver Bullion	1,694,087	1,694,086	1,622,611	1,593,611	1,593,611
Total	28,351,295	28,032,905	27,498,580	27,786,190	28,200,165

BANKING DEPARTMENT.

Proprietors' Capital	14,553,000	14,553,000	14,553,000	14,553,000	14,553,000
Reserve	3,564,729	3,554,704	3,131,881	3,140,040	3,113,267
Public Deposits	3,630,809	6,225,322	3,471,119	5,226,633	7,411,605
Other Deposits	8,644,348	8,225,082	8,757,379	8,341,610	8,565,079
Seven Day and other Bills . .	1,030,354	1,081,258	1,051,941	949,133	1,841,540
Total	31,423,240	33,614,366	30,965,320	32,214,416	34,327,491
Government Securities, including Dead Weight annuities	14,554,834	14,554,834	15,070,775	13,539,775	13,540,619
Other Securities	7,835,616	10,510,120	8,675,659	9,958,645	11,031,821
Notes	8,175,025	7,930,010	6,678,715	7,943,850	9,076,800
Gold and Silver Coin	837,765	619,402	540,171	772,146	678,251
Total	31,423,240	33,614,366	30,965,320	32,214,416	34,327,491

COUNTRY BANKS.

Average Aggregate Amount of Promissory Notes of Country Banks, which have been in Circulation in the United Kingdom, distinguishing the several Banks, or Classes of Banks, by which issued in each part of the Kingdom, during the three weeks ended 12th October, 9th November, and 7th December, 1844.—(Continued from p. 367 of vol. vii.)

Banks.	12th Oct. 1844.	9th Nov., 1844.	7th Dec. 1844.
	£.	£.	£.
England—Private Banks . .	4,674,162	4,635,041	4,442,808
Joint-Stock Banks . .	3,331,516	3,220,171	3,086,637
Scotland—Chartered Private & Joint-Stock Banks . .	2,987,665	3,284,295	3,486,818
Ireland—Bank of Ireland . .	3,597,850	3,896,750	3,900,275
Private and Joint-Stock Banks . .	2,456,261	2,832,397	2,945,046
Total	17,047,454	17,868,654	17,861,584

BANKRUPTCY.

An Analysis of the Bankruptcies in England and Wales, gazetted in each Month of the Quarter ended December 31, 1844; showing the Counties and Branches of Industry in which they have occurred.—(Continued from p. 368 of vol. vii.)

COUNTIES.	October.	November.	December.	TRADES.	October.	November.	December.
Metropolis . . .	28	47	23	<i>Agriculture and connected Trades.</i>			
Bedford	1	..	..	Farmers . . . . .	..	2	..
Berks . . . . .	..	1	3	Agricultural Implement Makers and Wheelwrights. }	..	..	..
Bucks . . . . .	..	..	2	Corn Factors	1	..	1
Cambridge . . . . .	..	2	1	Millers and Malsters	2	1	1
Cheshire	2	1	2	Hop Merchants . . . . .	..	..	..
Cornwall . . . . .	..	..	2	Brewers	1	1	1
Cumberland . . . . .	..	1	..	Horse and Cattle Dealers, and Woolstaplers }	3	3	..
Derby . . . . .	..	..	..	<i>Mining and connected Trades.</i>			
Devon	1	1	1	Mining Firms . . . . .	..	..	..
Dorset	1	..	2	Blasting Works . . . . .	..	..	..
Durham	2	6	3	<i>Manufactures.</i>			
Essex	4	2	..	Woollen Manufactures	1	2	1
Gloucester	1	2	..	Cotton „	1	3	1
Hants	3	1	2	Linen „	1	..	..
Hereford . . . . .	..	..	..	Silk „	1	2	..
Hertford . . . . .	..	1	1	Printers and Dyers . . . . .	..	2	1
Huntingdon . . . . .	..	..	..	Lace Manufacturers . . . . .	..	..	..
Kent	3	4	2	Hosiery „ . . . . .	..	..	..
Lancaster	9	8	8	Hardware „ . . . . .	..	4	1
Leicester . . . . .	..	2	1	Earthenware „ . . . . .	..	..	..
Lincoln	1	2	1	Glass „	2	..	..
Middlesex (exclusive of the Metropolis) }	..	..	1	Paper „ . . . . .	..	1	..
Monmouth . . . . .	..	1	..	Builders	4	2	3
Norfolk	1	2	2	Miscellaneous Manufactures .	3	8	8
Northampton . . . . .	..	2	1	<i>Commerce.</i>			
Northumberland	1	1	2	Bankers and Merchants	4	7	6
Nottingham	1	..	1	Shipowners, Warehousemen, Brokers, and Wholesale Dealers generally }	5	11	10
Oxford . . . . .	..	1	..	<i>Retail and Handicraft Trades.</i>			
Rutland . . . . .	..	..	..	Bakers	1	1	..
Salop . . . . .	..	..	..	Butchers	1	4	1
Somerset (including Bristol) }	7	5	3	Corn and Hay Dealers . . . . .	..	..	..
Stafford	1	3	3	Innkeepers and Victuallers	6	12	6
Suffolk . . . . .	..	2	1	Wine and Spirit Merchants	3	4	1
Surrey (exclusive of the Metropolis) }	1	4	..	Dealers in Grocery, Drugs, and Spices }	5	8	9
Sussex	2	1	..	Makers of, and Dealers in, Clothing }	12	5	2
Warwick	6	4	..	Makers of, and Dealers in, Furniture }	2	3	2
Westmoreland . . . . .	..	..	..	Coach Builders	2	..	..
Wilts . . . . .	..	2	..	Miscellaneous	16	34	20
Worcester . . . . .	..	2	..				
York (East Riding)	1	3	3				
„ (North Riding) . . . . .	..	1	..				
„ (West Riding) . . . . .	..	3	..				
Wales . . . . .	..	2	4				
Total	77	120	75	Total	77	120	75

QUARTERLY JOURNAL

OF THE

STATISTICAL SOCIETY OF LONDON.

JUNE, 1845.

*Eleventh Annual Report of the Statistical Society of London,
Session 1844-5.*

THE favourable state of the Society's affairs, which was reported by the Council to the last annual meeting of the Fellows, has continued to the present date, with every promise of the permanent prosperity and augmented usefulness of our institution. Its finances are unencumbered, its funded property is undiminished, and the number of its Fellows is steadily increasing; for although the number erased from the list of Fellows, by deaths among the senior and withdrawals among the country members, since the last annual meeting, is unusually great, yet the new admissions, during the same period, have been equally in excess; the number elected being 28, while the number who have ceased to be Fellows is only 25. The monthly meetings have brought forward many valuable contributions, and elicited many useful suggestions for further investigation; the Journal has maintained its character and sale, and forms for the past year, a volume worthy of being placed among the records of the Society; the library has undergone a complete classification, and there is every prospect of its possessing a new index before the close of the present session; and the Committees of local investigation are making a progress, which is now perfectly satisfactory, though for some time delayed by the difficulty of procuring proper agents. The Charities Committee now possess materials for a very interesting account of the voluntary charities of the metropolis; and the Poorer Classes Committee are actively carrying out, in the East of London, the inquiry into the state of its population, for which Mr. Hallam made so handsome a donation to the funds of the Society in the last Session. The Committee appointed by the Council to investigate the evidence which may be obtained from the experience of benefit societies, towards an elucidation of the laws of sickness, as well as mortality, have delayed to make any local efforts, until the results of the labours of an individual Fellow of this Society should be laid before it. This gentleman, Mr. F. G. P. Neison, actuary of the Medical Invalid and General Life Insurance Society, by a system of rewards for the best returns from benefit societies, has procured an unrivalled mass of materials, and by the most laborious and legitimate processes, has obtained results of great importance and interest, which he is prepared to lay before you. The reappointment of the Committee of this Society on the same subject is, however, highly advisable, because, with the aid of these new materials, it is important to suggest means and methods for the better registry of the experience of all permanent benefit societies in future, for which only imperfect provision has already been made by the legislature. The second Report of the Hospital Statistics Committee forms an interesting paper in the last

volume of the Journal, which is likewise much indebted to individual research, especially to Colonel Sykes, Mr. Porter, Mr. Hallam, Major Graham, Mr. Chadwick, Mr. Fletcher, Dr. Guy, Dr. Clendinning, and Mr. Neison. The papers read in the present session by Dr. Balfour, and Dr. Guy, on the Vital Statistics of the Army and Navy, and of the Peerage and Baronetage respectively; the important exposition of the state of the East India Company's Educational Establishments in the East, by Colonel Sykes; and the historical and statistical account of the System of Supplying Water to the Metropolis, by Mr. Fletcher, to be included in the current volume of the Society's transactions, will also be worthy of especial attention; and scarcely less, the continued selection from the valuable papers read in the Statistical Section of the British Association at its last meeting at York.

The Council likewise gladly avail themselves of this opportunity of calling the attention of the Fellows at large to the labours of the Central Statistical Commission of Belgium at Brussels, the decrees appointing and regulating the operations of which, have successively appeared in the Society's Journal.* The members of this Commission, instituted on the 16th of March, 1841, in their sitting of the 6th of October in the same year, although necessarily giving their first attention to statistics, regarded in an administrative light, as collections of those facts only which the Government could procure and arrange, yet carefully defined, likewise, their scientific purpose, to embrace every well-ascertained social fact, of whatever class, and in whatever form it may admit of statement, without derogating from the estimation of superior accuracy attaching to a statement or a demonstration in figures, whenever practicable. They then divided themselves into five sections, each to define the subjects which ought to be included under the several great divisions of the plan for making a general statistical account of the kingdom; and these great divisions, with their principal subsections, so closely accord with those laid down by the Statistical Society of London, in the Sixth Annual Report of the Council, in the preceding year (1840), as to afford a gratifying testimony to the entertainment of precisely the same views by our gifted neighbours and ourselves. They are here compared:—

The *Sixth Annual Report* of the Statistical Society of London (1839-40), which contains an elaborate description of the scope and system of its labours, divides statistics into the following chief sections:—

"I. The *Statistics of Physical Geography, Division, and Appropriation*; or, geographical and proprietary statistics.

"II. The *Statistics of Production*; or, agricultural, mining, fishery, manufacturing, and commercial statistics.

"III. The *Statistics of Instruction*; or, ecclesiastical, scientific, literary, university, and school statistics.

"IV. The *Statistics of Protection*; or, constitutional, judicial, legal, military, and criminal statistics.

The *Procès-Verbaux* of the Central Statistical Commission of Belgium (6th October, 1841, 19th January, 1842), laying out a scheme for national statistics, divides statistics into the following chief sections:—

"I. *Territory*. The topographical, hydrographical, and meteorological description of the country.

"III. *Industrial Condition*. The economical condition of agriculture, commerce, and industry.

"IV. *Intellectual, Moral, and Religious Condition*. Public instruction, sciences, letters, fine arts, charitable institutions, crimes, &c.

"V. *Political Condition*. The constitution, fundamental laws, internal administrative organization, and relations with other states.

* Vol. iv. p. 226, and vol. v. p. 209.

"V. The *Statistics of Life, Consumption, and Enjoyment*; or, of population, health, the distribution and consumption of the commodities of life, and public and private charity.

"All the departments of Statistics above described may be cultivated to the development of as many branches of moral science, and to the attainment of that true insight into the actual condition of society, without which the application of remedial measures is purely empirical."

"II. *Population and its Movement*. Number of inhabitants, their physical constitution, their classification by ages and professions, births, marriages, and deaths.

"Is it not, indeed, the object of this science to discover and exhibit the facts which portray the physical, moral, economical, and civil condition of a nation, and which can generally be stated in quantities and expressed by figures?"

The most remarkable of the few differences between these classifications of the common objects of our study, consists in the Statistical Society of London including, in the first section, under the term *Geographical*, "a notice of those peculiarities in the physical character of the races of men inhabiting a country, which are active agents in determining their relative condition,"* and leaving the phenomena of population in a highly civilized state of society to a concluding section, after all the elements of its civilization have been described; while the members of the Belgian Commission proceed at once from the former to the latter, and combine them in a second section, which precedes all description of those very elements of which they are in that section discussing the results. The Belgian Commissioners, or rather a sub-Commission formed out of their number, to devise means of executing that part of the great design of their appointment, which contemplates the necessity of local assistance to their labours, add, however, words which convey a useful hint to the members of this Society, notwithstanding the difference of our position, which causes our first regards to be directed to the scientific, and but secondarily to the official character of statistics. "This rapid enumeration," they say, "suffices to give a general idea of the labours in which the central Commission will have successively to engage, and at the same time it shows the great utility, the necessity even, of obtaining the co-operation of zealous and capable persons in the provinces, and in the principal towns of the kingdom;" alluding more particularly to the system of co-operative statistical commissions, productive of such excellent results in the kingdom of Sardinia. "There are offices and professions, out of the holders and exercisers of which," they continue, "one would wish by preference to see such commissions formed; such are the magistracy, the provincial councils, the municipal governments, the managers of hospitals and of public charity, the chambers of commerce, the commissions of agriculture, the medical profession, professors at the universities and elsewhere, engineers, and men of study or of science, whose meetings would give to the Commissions the character, rather scientific than administrative, which seems to us properly to belong to them."

Because in England our institutions are of a more voluntary character than in Continental States, it follows not that we should despise co-operation, but rather ought we to seek for and cherish it, as the greatest triumph of our independence of character and the greatest test of our moral and intellectual advancement. Why, therefore, should not we enjoy the advantages of a national co-operation in our labours, less regular,

* Sixth Annual Report, Journal, vol. iii. p. 2.

perhaps, in its form, than can be accomplished by ordonnances of the State, but possessed of greater vitality, because created by a common conviction of its value? At present, parties locally interested in statistics form themselves into a Society, which, having made investigations on dissimilar plans in their respective neighbourhoods, and finding, as they conceive, that there is nothing more to be done, become virtually extinct; while, had they formed local committees of a central Society, their labours would have been conducted with a nearer approach to uniformity, and have produced results admitting of a more general comparison than can be made between those obtained without any reference to a common system of notation; and further, their members would have been aware that the labours of the statist can never be finished until the moral and political sciences are made complete, of which there is certainly no immediate prospect; deep as is the interest attaching to every new step made in our knowledge of them, in an age whose characteristic it is to appeal from habits to principles,—a name too often applied to vague hypotheses,—chimeras which inhabit the dark ignorance whose dominion it is our purpose to narrow.

Let us hope, therefore, that by offering every encouragement to local investigations, and the formation of local associations for carrying them out, we may inspire many gentlemen of the classes not ill described in the Report of the Belgian Sub-Commission, with that spirit of combination which will lead them to recognise the scientific value of local facts, though collected only for local uses, and to remit them to one national centre of publication, where they will always be able to ascertain the subjects which want yet further elucidation. To such parties we can offer all the advantages which are enjoyed by the present Fellows who are resident in the country, or only occasionally in London; and wherever, at the principal centres of our population, they are sufficiently numerous, we would recommend their union as a local committee of the Statistical Society of London, with which we may maintain an interchange of information and kind offices; thereby uniting general views with specific knowledge; a union which has never been made in active minds without being fertile in discovery.

For the details of the pecuniary affairs of the Society, the Council would refer the Fellows to the accompanying satisfactory balance-sheet, duly reported by the auditors.

*Abstract of Receipts and Expenditure from the 1st January to the
31st December, 1844.*

1844.		RECEIPTS.		£.	s.	d.
To Balance in the hands of the Treasurer	.	.	.	96	12	11
Arrears of Subscriptions paid:	2 for 1840	.	.	£4	4	0
„	2 for 1841	.	.		4	0
„	3 for 1842	.	.	6	6	0
„	19 for 1843	.	.	39	18	0
				<hr/>		
Subscriptions	297 for 1844	.	.	623	14	0
Compositions.	.	.	.	84	0	0
Messrs. Parker for sale of Journal.	.	.	.	72	4	0
Mr. Hallam towards an Inquiry into the Condition of the Poor in the Metropolis.	.	.	.	25	0	0
				<hr/>		
				£956	2	11

Assets, Decem' er 31, 1844:—

	£.	s.	d.		£.	s.	d.
Stock in the Reduced 3½ per Cent. .	569	17	0	cost	567	0	0
Consols 3 per Cent. .	328	15	4	,,	300	0	0
						867	0 0
<i>Balances of Grants made to Committees:—</i>							
Library Committee					4	14	10
Hospital Statistics Committee					0	1	4
House Committee					0	2	2
Charities Committee					1	10	0
London Poorer Classes Committee					10	0	0
Cash Balance						16	8 4
Petty Cash Balance.						136	12 0
Dividend on Stock due						8	19 4½
Arrears of Subscriptions due: 2 for 1838					4	4	0
„ 2 for 1839					4	4	0
„ 5 for 1840					10	10	0
„ 15 for 1841					31	10	0
„ 26 for 1842					54	12	0
„ 36 for 1843					75	12	0
„ 59 for 1844					123	18	0
					306	12	0
Deduct amount not likely to be paid .					144	12	0
						162	0 0
						£353	15 8½

EXPENDITURE.

1844.	£.	s.	d.
By Rent.	100	0	0
Salaries	204	4	0
Housekeeping expenses	25	7	0
Messrs. Clowes for Printing, one year (1843-44)	263	1	0
Editing and Advertising Journal.	92	4	6
Stationery	1	9	8
Lithography	4	6	0
Parcels and Postages	4	17	0
Library	19	16	0½
Engraving	12	9	0
Miscellaneous	10	9	3
Balance paid to Petty Cash (old account)	22	7	8
Grant to Education Committee	25	0	0
Grant to Charities Committee	10	0	0
Grant to London Poorer Classes Committee	10	0	0
Grant to Library Committee	5	0	0
Cash Balance	136	12	5
Petty Cash Balance	8	19	4½
	£956	2	11

Liabilities:—

Messrs. Clowes	124	14	0
Rent	100	0	0
Richard and Wilson	9	4	9
Vacher	2	7	10
	£236	6	7

Examined and approved

JOHN BOWRING,
J. MELVILLE,
J. R. MARTIN,

Auditors.

London, February 12, 1845.

Fourteenth Meeting of the British Association for the Advancement of Science, at York; September 25th—October 2nd, 1844: Proceedings of the Statistical Section.

THE Meeting of the British Association at York was fully attended, and fertile in the results of individual labour adduced in its several sections. Section F (Statistics) was held at the Savings' Bank.

President.—Lieutenant-Colonel W. H. Sykes, F.R.S.

Vice-Presidents.—Sir John V. B. Johnstone, Bart.; Sir C. Lemon, Bart.; T. Tooke, Esq.; G. R. Porter, Esq.

Secretaries.—James Heywood, Esq.; Joseph Fletcher, Esq.; Dr. Laycock.

Committee.—Earl Fitzwilliam; His Excellency Chevalier Bunsen; His Excellency Mr. Everett; Colonel Everest; Dr. Alison; Dr. King; L. Horner, Esq.; H. Stansfield, Esq.; Dr. Thurnam; Samuel Turner, Esq.; Dr. C. Taylor; E. Chadwick, Esq.; T. Barstow, Esq.; E. Bullen, Esq.; John Shuttleworth, Esq.; W. Felkin, Esq.; Sir John P. Boileau, Bart.; Edmund Ashworth, Esq.; John Bright, Esq., M.P.; Frederick Hill, Esq.; Edward Baines, Jun., Esq.; W. Copperthwaite, Esq.

The following papers occupied the attention of the Section:—

1. A Statistical View of the Mining Industry of France, in continuation of a paper read before the Statistical Section at Newcastle, in 1838, by G. R. Porter, Esq., F.R.S., Corresponding Member of the Institute of France. (See vol. vii. p. 281.)

2. Notes on Agricultural Schools, in continuation of a paper read before the Statistical Section at Cork, in 1843, by Mrs. Davies Gilbert.

3. On the Population and Mortality of Calcutta, by Lieutenant-Colonel W. H. Sykes, F.R.S., President of the Section. (See vol. viii. p. 50.)

4. The Statistics of Old and New Malton, by William Charles Copperthwaite, F.S.S., Borough Bailiff of Malton. (See p. 66.)

5. Hints on the Improvement of Agricultural Labourers, by the Rev. C. J. Dury. (Included in the present volume.)

6. On the Sanatory Condition of the City of York, by T. Laycock, M.D., Physician to the York Dispensary. (See vol. viii. p. 63.)

7. Statistics of the Hosiery Trade, by William Felkin, Esq.

8. On the Relative Liability of the two Sexes to Insanity, by John Thurnam, M.D. (See vol. vii. p. 310.)

9. Statistics of the Hospitals for the Insane under the Bengal Presidency, by Lieutenant-Colonel W. H. Sykes, F.R.S., President of the Section. (See p. 58.)

10. On the Financial Economy of Savings' Banks, by J. W. Woolgar, Esq. (Included in the present volume.)

11. Criminal Statistics and Movement of the Bond Population of Norfolk Island, to December, 1843, by Captain Maconochie, R.N., late Superintendent. (See p. 1.)

12. Statistics of the Free City of Frankfort-on-the-Maine, by Lieutenant-Colonel W. H. Sykes, F.R.S., President of the Section. (See vol. vii. p. 318.)

13. Notes on the Report of the Royal Commissioners on the Operation of the Poor Laws in Scotland, 1844, by J. P. Alison, M.D. (See vol. vii. p. 316.)

14. Report on the Experience of the St. Marylebone Infirmary, since

1827, by John Clendinning, M.D., Oxon, F.R.S., Physician to the Infirmary. (See vol. vii. p. 292.)

15. Notes on the Reports of the Health of Towns Commissioners, by T. Laycock, M.D., Physician to the York Dispensary.

16. State of Education in York, exhibited by Tables, the results of Inquiries made by a Committee of resident Gentlemen. (Included in the present volume.)

An application was made by the Committee of the Section, through its President, to the Council of the Association, for a grant of 40*l.* to be applied in elucidation of the Statistics of Sickness and Mortality at York; which sum it was accordingly resolved by the Council to place at the disposal of a Sub-Committee of the Section, in the name of Dr. Laycock.

At the concluding meeting of the Sectional Committee, at which this favourable consideration of its application to the Council was announced, the Members present came to the unanimous resolution, "That it is essentially necessary to the elucidation of various important questions of economical science, that the statistics of agriculture and mining be accurately collected." They then proceeded to the consideration of the existing state of the registration of data designed to exhibit the movement of the population in England and Wales; and though unable in that late stage of proceedings to submit their views to the Council of the Association, adopted a series of resolutions suggesting some important amendments.

Statistics of the Educational Institutions of the East India Company in India. By LIEUTENANT-COLONEL W. H. SYKES, F.R.S.

THE Government educational institutions in India date comparatively from so recent a period, that the most ancient amongst them (with the exception of the Sanscrit College at Benares), the Hindoo College at Calcutta, was only in its 28th year in 1844; and very many of them are only of two or three years' standing. A gradual progress, however, is manifest, both in the number and character of these institutions: and though the time is far—very far—distant when they will be commensurate with the wants of the people, yet a perseverance in the benevolent and politic activity, which has evidently been strengthening of late years, will ultimately fully realize, there can be little doubt, the objects contemplated—a healthy, moral, and intellectual standard in the native mind, and a bond of union between the governors and governed, by sympathies and tastes in common, derived from a common knowledge. For some time much embarrassment was experienced by the Bengal Government, and the progress of education was retarded, by the conflicting opinions of able and zealous partisans of the respective advantages of teaching the natives of India the science and literature of Europe through the medium of the English language or through the medium of the vernaculars. The English system obtained at first, and held its ground from the want of vernacular class-books; but latterly various translations of English scientific and literary works have been made, and are making; and it will be observed that most of the schools have now an English and Oriental department, in which, to a certain extent, both systems can be pursued.

The following details are derived from the official reports of the several Boards of Education to their respective Governments from the years 1835-6 to 1843-4 inclusive ; and I shall notice these reports in the order in which the Presidencies in India are usually ranked, namely, Bengal (including the North-west Provinces or Agra Government), Madras, and Bombay. I must premise that the earlier reports are comparatively meagre ; I shall prominently notice, therefore, the Bengal reports, which embrace 1842-3 and 1843-4, and those from Bombay, which come down to 1841 and 1842, and must confine myself to that from Madras for the year 1843, which was its second report.

Bengal.—All the educational institutions under the Bengal Presidency, including the Agra Government, up to the 30th April, 1843, were under a general committee of public instruction sitting in Calcutta. At that date it was thought expedient that the institutions should be brought more directly under the control of the Government itself ; the general committee was abolished ; the institutions in the North-west Provinces were separated from those in Bengal and placed under the Lieutenant-Governor of those provinces. A Council of Education was established in Calcutta for the immediate superintendence of the colleges and schools at Calcutta and Hoogly, and to aid and advise the Government ; but the whole of the institutions, both in the Bengal and Agra Governments, were directed to address their reports to the Government of India in the general department. The only report, however, received from the North-west Provinces since the separation relates to financial matters ; my details, therefore, for 1842-3 will relate to the condition of the institutions of both Governments, while for 1843-4 they will be confined to the Bengal Presidency.

The Council of Education, on the 30th April, 1842, consisted of the President of the Indian Law Commission, the Indian Law Commissioner, the Secretary to Government of Bengal, the Secretary to the Indian Law Commission, the Superintendent of the Eye Infirmary, two Hindoo gentlemen, and the Secretary to the Council.

The institutions under the inspection of the Council on 30th April, 1843, consisted of 6 in Calcutta, namely, the Hindoo College and auxiliary Patsala, School Society's School, Medical College, Mahomedan Madressa, and the Sanscrit College ; at Hoogly there were 5, namely, College of Mahomed Mohsin, Hoogly Branch School, Hoogly Infant School, Seetapoor School, and Ummerpoor School. In the provinces under Bengal there were 25, namely, Bancoorah Probational School, Jessore School, Dacca College, Commillah School, Chittagong School, Bauleah School, Burrisaul Probational School, Sylhet Probational School, Cuttack School, Midnapoor School, Gowhatty School ; Gowhatty branch schools at Nilachol, Panda, Beltulla, Amingong, and North Gowhatty ; Seesaugor School, Akyab School, Ramree School, Moulmein School, Tavoy and Mergui branch schools, Patna School, Bhaugulpoor School, and Bhaugulpoor-hill School. In the North-western Provinces there were 15, namely, Benares Sanscrit College, Benares English Seminary, Benares Branch School, Ghazepoor School, Allahabad School, Saugor School, Jubbulpoor School, Azinghur School, Goruckpoor School, Agra College, Delhi College, Bareilly School, Meerut School, Furrackabad School, and Ajmere School. The total number of educational institutions under the Bengal Presidency amounted therefore to 51 for a population of more than 70 millions of souls.

The period embraced in the first report, which I shall more particularly notice than its predecessors, although I will endeavour to give a view of the annual progression of the institutions, is from the 30th April, 1842, to the 30th April, 1843, and the second report is from the 1st May, 1843, to the 30th April, 1844.

Vernaculars.—The vernacular languages taught in the respective schools, according to the part of the country in which they are located, would appear to be Oordoo, Hindee, Bengali, Oorya, Mug, and Burmese.

The Council superintend personally the institutions at Calcutta and Hoogly, and did regulate the others through local committees; but Government has now taken the direct control into its own hands. Nevertheless, the Council feel it to be their duty to state their full conviction that, “unless a minister of public instruction, with properly qualified inspectors, or a council, with secretary and inspectors, be appointed, the duties of the general educational department cannot be fully or uniformly provided for.” Of the justness of these observations no reflective person can doubt.

The colleges are divided into two departments—the junior or elementary, and the senior; each department is composed of classes, the studies of which are graduated. When the pupils of any class are too numerous for one master, it is subdivided into sections. No class or section of a class consists of more than 40 scholars in the junior department; and in the senior department, of not more than 30 scholars. Masters are selected at public examinations, and assistant teachers are chosen from those pupils who have distinguished themselves in the colleges and schools. But the educational system in Bengal labours under the disadvantage of the want of normal schools, and an organized system of inspection or examination, or even adequate local superintendence, in regard to teachers after appointment.

The several colleges and institutions are respectively supplied with European and native masters and tutors in furtherance of the specific objects contemplated in each foundation; and inducements are held out for the acquisition of the higher branches of knowledge by the foundation of scholarships of different values, tenable for a greater or less length of time. And the Council make it a condition with the candidates for these scholarships that they shall be thoroughly versed in the vernacular on their becoming candidates, on the ground that they would otherwise be unable to communicate to their countrymen the knowledge they had derived from European sources. This is a highly politic resolution. Proofs are already afforded of the interest the native nobility and gentry take in the instruction of their countrymen in Bengal. Madras, and Bombay, by their munificent donations in aid of educational institutions. In 1840–41, the Raja of Burdwan gave 25,000 rupees for the general purposes of education. The Bengal report for 1842 mentions a donation of 20,000 rupees by Raja Bijai Govind Sing for the same object. Dwarkanath Tagore gave 2000 rupees for prizes in the Medical College; Rustumjee Cowajee also gave a sum for prizes; and others founded scholarships. In Bombay, the magnificent foundations of the Elphinstone Institution, and Medical College and Hospital, show the bent of the native mind there. Annexed is a return of the scholarships gained in 1843–4, and available for 1844–5, showing the inducements held out:—

TABLE I.—*Balance of Scholarships in the Bengal Presidency, which appeared in the General Report of 1842-43, and those gained in the year 1843-44, also the Scholarships available for 1844-45.*

Colleges and Schools.	Balance in the Report of 1842-43.				Gained in 1843-44.				Available for 1844-45.			
	English.		Oriental.		English.		Oriental.		English.		Oriental.	
	Junior.	Senior.	Junior.	Senior.	Junior.	Senior.	Junior.	Senior.	Junior.	Senior.	Junior.	Senior.
Calcutta :—												
Sanscrit College . . .	..	..	3	6	..	..	3	5	..	..	..	1
Scholarships open to public competition in the Sanscrit College	..	..	1	1	..	..	..	..	..	..	1	1
Hindoo College . . .	..	..	..	..	..	..	..	..	..	..	..	..*
Madressa College . . .	3	3	..	1	..	..	..	..	3	3	..	1
Scholarships open to public competition in the Madressa College	1	1	..	1	..	..	..	1	1	1	..	..
Hoogly College of Mohammed Mohsin . . .	..	1	5	2	..	1	5	..	..	..	..	2
Mohammad Mohsin's Scholarships . . .	..	..	..	..	..	..	..	..	..	..	..	..†
Scholarships open to public competition in the College of Mohammed Mohsin . . .	..	1	1	1	..	1	1	..	..	..	..	1
Hoogly Branch School in the College of Mohammed Mohsin . . .	..	..	1	..	..	..	..	..	..	..	1	..
Sectapore School ditto . . .	1	..	1	..	..	..	..	..	1	..	1	..
Ummerpore School ditto . . .	1	..	..	..	..	..	..	..	1	..	..	..
Arracan :—												
Ramree School in the Hindoo College . . .	1	..	..	..	..	..	..	..	1	..	..	..
Tenasserim Provinces :—												
Moulmein School ditto . . .	1	..	..	..	..	..	..	..	1	..	..	..
Mergui School ditto . . .	1	..	..	..	..	..	..	..	1	..	..	..
Probational :—												
Bancoorah School in the College of Mohammed Mohsin . . .	1	..	..	..	..	..	..	..	1	..	..	..
Midnapore School ditto . . .	..	..	..	..	..	..	..	..	1	..	..	..*
Cuttack School ditto ditto . . .	1	..	..	..	..	..	..	..	1	..	..	..
Dacca :—												
Central College . . .	..	7	..	..	..	4	..	..	..	3	..	..
Scholarships open to public competition in the Dacca College . . .	..	1	..	..	..	..	..	..	..	1	..	..
Carried forward . . .	11	14	12	12	..	6	9	6	12	8	3	6

* Gained in 1841-42.

† Gained in 1842-43.

Table I.—*Balance of Scholarships, &c.—continued.*

Colleges and Schools.	Balance in the Report of 1842-43.				Gained in 1843-44.				Available for 1844-45.			
	English.		Oriental.		English.		Oriental.		English.		Oriental.	
	Junior.	Senior.	Junior.	Senior.	Junior.	Senior.	Junior.	Senior.	Junior.	Senior.	Junior.	Senior.
Brought forward . . .	11	14	12	12	..	6	9	6	12	8	3	6
Probational:—												
Sylhet School in the Dacca College . . .	1	..	..	..	..	..	..	..	1	..	..	..
Burrisaul School ditto ditto	1	..	..	..	..	..	..	..	1	..	..	..
Jessore College in the Dacca College . . .	..	..	..	..	1*	..	..	..	..	..	..	..
Gowahatty School ditto ditto	1	..	..	..	..	..	..	..	1	..	..	..
Seesaugor School ditto ditto	1	..	..	..	..	..	..	..	1	..	..	..
Bauliah School ditto ditto Commillah School ditto ditto . . . . .	..	..	..	..	..	..	..	..	..	..	..	..†
Chittagong School ditto ditto	1	..	..	..	2*	..	..	..	..	..	..	..
Patna School . . . .	..	..	..	..	..	..	..	..	..	..	..	..†
Bhaugulpore School .	1	..	..	..	1	..	..	..	..	..	..	..
Total	17	14	12	12	4	6	9	6	16	8	3	6

* One additional Scholarship awarded.

† Gained in 1841-42.

From this it would appear that the total number of scholarships gained in 1843-4 in the English department, in the junior class, was 4, and in the senior class 6; and in the junior class of the Oriental Department 9, and in the senior class 6; leaving available for 1844-5, in the junior class of the English department, 15, and in the senior class 8; in the junior Oriental class 3, and senior class 6; making a total of 32 scholarships available for 1844-5. Subsequent tables will show that only 19½ per cent. of the whole of the pupils in the Bengal and Agra Government schools contribute towards their education; and nearly the half of the whole of the paying students is contributed by the Hindoo College and its schools. Under the Agra Government, out of 2,420 students, only 42 pay. At first it was not deemed sufficient that instruction was gratuitous; students were actually bribed to attend the schools by having stipends allotted to them. The impolicy of this measure early manifested itself, and has almost disappeared, and the system of scholarships for the senior and junior classes has been adopted; holding out to those who have attained a prescribed intellectual standard, not only distinction amongst their fellows, but a liberal monthly provision for a period of years. A constant stimulus is thus applied to the industry of all the scholars, emulation is excited, and the prizes are eagerly contended for, in the superior colleges and schools.

The Appendix B to the report for 1842-3 gives lengthened details

of the conditions upon which scholarships are to be obtained and to be held; the qualifications for obtaining the senior and junior English, Arabic, and Sanscrit scholarships; the terms on which they are held; the forms and customs in the examinations, &c. &c. These rules are too long for me to embody in my present paper, and I will limit myself to saying that the annexed examination papers will show that the standard of acquirements for senior scholars is not only very high to ensure success, but the rules prescribe that the scholarships shall be forfeited "if the holders of them do not make a reasonable progress in their studies; and periodical examinations of the scholars are to take place to ascertain the fact."

Independently of classical and scientific instruction, it was proposed to establish a Professorship of the Laws and Regulations; but objections being taken to the proposition, the Advocate-General, Mr. Edwardes Lyall, gave a series or course of gratuitous lectures on jurisprudence in the various forms in which it is administered in the Courts of India. These lectures were attended by the senior classes of the Hindoo and Hoogly Colleges. They were commenced in October, 1843, and were continued in a regular course until February, 1844. At an examination consequent upon these lectures, six of the pupils acquitted themselves with the greatest credit, and it was thought right to award to one of them, Issor Chunder Mitter, a gold medal.

In the examinations in this and other branches of knowledge, sufficient precautionary measures appear to be taken to prevent the possibility of intercommunication or collusion, by sending the written questions for scholarship examination to every college to be *opened and answered on a fixed day*. In the report for 1840-41 and 1841-2, the late General Committee state that the former system of examination by local committees was found to be inconvenient (which means, I suppose, ineffective), and in consequence some members of the General Committee and others undertook to draw out sets of questions in each department of study, which were to be answered *without assistance*. "To accomplish this object," says the report, "our secretary was provided with lithographic presses, and after writing out the questions upon the transfer paper, the required number of copies were thrown off *in his presence*, and the lithographic stones forthwith cleaned. These sets of questions were carefully sealed and forwarded so as to be received at all the colleges and schools on the same day. On that day, being the day previously fixed for the examination, the local committee having met agreeably to the instructions given, the examination papers were opened and were distributed to the candidates, who had no previous instruction of the probable subject of the examination, except inasmuch as the questions embraced for the most part the different branches of study they had pursued in the college or school. Each student was placed at a separate desk, so as to make it impossible for him to consult books, and very difficult to communicate with the other competitors. This was further prevented by the presence of one or more of the members of the local committee, who remained in the room during the whole time the students were employed in giving answers to the prescribed questions. At the termination of the day, the exercises were collected and sealed up, and the remaining portion of the examination questions were given out the following day, and the same precautions were observed until the

examination was completed." Such being the case, I have no hesitation in expressing my astonishment at the answers of the pupils, which are recorded in the reports, evincing an extent of acquirement and power of mind in some individuals that it might be thought could scarcely have resulted from the prolonged studies of an European university education. I shall append specimens of these questions and answers; and we may fairly begin to doubt whether, in the arena of intellectual combat with some of these natives, educated Europeans might not only fail to prostrate their adversary, but possibly get a fall themselves.

With respect to the nature of the instruction in the vernacular schools, it will be best understood by naming some of the class-books in use, translated into the native languages. For instance, Introduction to Natural Philosophy, Euclid's Elements of Geometry, Elements of Practical Geometry and Trigonometry, with trigonometrical tables, Elements of Political Economy, History of India, Hindoostanee Poetical Reader, History of England, Principles of Government, Principles of Legislation, Principles of the Government Revenue Laws in Bengal, Chambers' Educational Course, and History of Rome.

With respect to the English branches of education, the examination papers for senior scholarships will show what studies are prescribed and followed in the highest departments of the colleges and schools.

An enumeration of the establishment of one of the Hindoo and one of the English colleges will give the best idea of the objects, character, and intellectual means of these institutions. The Benares Sanscrit College and the Delhi English College returns being before me, I give them. In the first there are three professors of Sanscrit grammar, with salaries varying from 60 to 30 rupees per mensem; two of poetry, with salaries respectively of 80 and 32 rupees; one of the vedanta, one of logic, one of shankha, one of law, and two of astronomy—each, with the exception of the second astronomer, who gets 32 rupees, receiving 80 rupees per mensem; and one professor of natural philosophy, with a salary of 60 rupees. All these professors or teachers are Brahmins. Persian is also taught by two Hindoos. There is a librarian, an English writer (a native), and assistant secretary, with a salary of 50 rupees monthly, and various servants, water-bearers, sweepers, peons or messengers, &c. The total monthly expense being 1105 rupees, with 396 for scholarships. Twenty-one pupils were paid for their attendance, one receiving 5 rupees and the rest 3 rupees monthly. The scholarships are, four senior at 20 rupees, eight at 15 rupees, and sixteen at 8 rupees monthly.

The Delhi College consists of an English and Oriental department. In the former the principal is F. Bontras, Esq., with a salary of 600 rupees monthly; four European head masters, with salaries varying from 400 to 120 rupees monthly; two native head masters in English; three teachers of the Oordoo language, with salaries varying from 80 to 30 rupees; an European drawing-master, on 100 rupees monthly; writing-master for English, nagree ditto, librarian, servants, &c. In the Oriental department there are five teachers of Arabic, three of Persian, and two of Sanscrit, with salaries varying from 100 to 20 rupees monthly. There are two teachers of European science, a writing and nagree master, an arithmetician, an English writer, treasurer, and librarian (the two last receiving 10 rupees a-month each), servants, &c. The scholarships in the English department are, one at 40 rupees, one

at 30, six at 25, four at 8, four at 6, and thirteen at 4 rupees monthly. In the Oriental department there are twelve scholarships at 18 and 16 rupees, thirty-two at 4 rupees, three senior scholarships at 20 rupees (founded by Nawab Itma-ood-Dowlah), and sixteen junior at 4 rupees monthly; making a total of 92 scholarships. The total monthly grant to the college is 2790 rupees, and 780 rupees for scholarships.

The above details supply a sufficient picture of college establishments, and will render unnecessary systematic remarks upon each college.

The Hindoo College at Calcutta differs only in having a larger establishment than the preceding, there being a principal, nineteen English teachers, seven vernacular teachers; with a superintendent and twelve teachers to the Patsala school attached; the whole cost being 60,065 rupees per annum for 1842-3 for 518 Hindoo pupils in the College, and 252 in the Patsala, nearly the half of the cost being derived from school fees. The cost, therefore, per head was $6\frac{1}{2}$ rupees monthly.

For the information of the Council of Education, the Court of Directors of the India Company transmit from time to time such reports as appear on education, both in England and on the Continent.

As detailed notices of each institution would extend this paper to an inconvenient length, I shall limit my observations to the mention of any characteristic features that may strike me: for instance, in the Sanscrit College at Calcutta the students are all Hindoos, being in fact Brahmins, with a few Boyolyas; almost all of them are in indigent circumstances, and not one of the students pays for his education. Admission to the grammar classes is permitted up to 15 years of age, to the sahitya class up to 18, to the alaokar class up to 20, and to the higher classes up to 22 years of age. Books from the library are allowed to be taken home for study, upon the responsibility of the professors.

The Madressa at Calcutta is devoted to Mahomedans, and most of the scholars receive gratuitous instruction; 42, however, of them paying. It is stated that the Mahomedans generally, and particularly the gentry, are averse to receiving European instruction at public institutions; but this assertion is not borne out by the returns. The subjects of instruction in the first class are history, geometry, algebra, arithmetic, natural philosophy, logic, geography, and grammar; the lower classes have easier matter. All the scholars devote themselves to Arabic, and some learn English.

Medical College.—The Medical College, with auxiliary male and female hospital, exhibits the feature of not having a single paying student. It has its European professors of anatomy and midwifery, surgery, medicine, botany, chemistry, and materia medica; and to the European it presents the unexpected and singular feature of turning out accoucheurs, surgeons, and anatomists from the castes of Brahmins, Bunneas, Bankers, Oilmen, Writer Castes, and Mahomedans, as well as Christians. The natural as well as religious repugnance which must have been overcome in these castes bears strong testimony to the changes that can be effected even in rooted predilections when operated upon through the medium of the understanding. The report for 1844 says, "with regard to the last day's examination on practical anatomy and surgical operations performed on the dead body, it may be stated that several exceedingly neat dissections were made in a very short space of time." The dissections are then enumerated. Now this to

me, with my more than 40 years' knowledge of the natives, does appear a marvellous change. But so strongly is the advantage of surgical skill felt, that a native gentleman of Calcutta, Rustomjee Cowajee, has presented 600 rupees to the College to be devoted to the purchase of an annual gold medal for the most proficient student in practical anatomy. And his letter making the offer (page cxxviii., Report, 1843), is a model of English composition and of enlightened sentiment. Dwarkanath Tagore also had previously given 2000 rupees for prizes. The successful students are appointed sub-assistant surgeons to the several dispensaries, founded by Government or to regimental hospitals. The report mentions 13 dispensaries in 1842-3, and 17 in 1843-4. In the former year 1,391 in-door patients were treated, and 46,766 out-door patients: the whole expense of these dispensaries being 20,958 rupees. The report, dated 1st July, 1843, contains a list of 33 sub-assistant surgeons, the designation of those natives of the highest grade who have passed the College and who have been appointed to stations, and this is independent of 32 native doctors sent to regiments. The half-yearly report, ending 31st October, 1843, contains a list of 31 sub-assistant surgeons, and 45 native doctors who had passed the College. A females' hospital, capable of accommodating 100 patients, as auxiliary to the College, has been built by subscription with a view to instruction in midwifery. In the male hospital all castes eagerly avail themselves of its advantages; and the Brahmin and the outcaste may be found occupying neighbouring beds in the same wards without repugnance.*

College of Mahomed Mohsin.—The College of Hadjee Mahomed Mohsin at Hoogly, although called after a Mahomedan, its benevolent founder, admits Christians and Hindoos as well as Mahomedans; indeed the Hindoos far prevail over the other two religions, and the expression in the rules of admittance is based on the widest liberality, "that it is open to candidates of every sect or creed willing to conform to the established rules of discipline." It is divided into the English and Mahomedan departments, and in the latter amongst the 14 Mahomedan professors there are singularly enough 3 Shias to the 11 Sunis. The principle of toleration, therefore, is in efficient operation. There are several branch schools attached, and the total number of students in College and schools in 1843 was 1,125, and in 1844 the number was 1,124. The majority of them are free scholars, but in the last year 468 paid for instruction, and the Institution would be overwhelmed with pupils were it not for the stringent conditions of admission. Pupils cannot compete for honorary or pecuniary rewards after 20 years of age. On the opening of the College on the 1st August, 1836, within three days 1,200 candidates enrolled their names, many of them attending from a distance of 6 or 8 miles.

By a statement of Mr. H. P. Bayley, Deputy Secretary to Government, dated 15th February, 1843, the foundation funds of this noble institution were on that day 78,740*l.*!

Dacca College.—To the Dacca College, Bapoo Rama Lochun Ghose presented 1,000 rupees, the interest of which is to be given in prizes

* By the Bengal papers of February, the Governor-General, with a view of enabling the Medical College to meet the demands of the service, has increased the stipendiary students of the secondary school to one hundred.

annually; and he proposed giving 3,000 rupees more for the improvement of the vernacular department. The first class of this College had read the History of Rome, selections from Shakspeare, Addison, and Pope; they could sketch maps of part of Europe and Asia; had read the first four books of Euclid, and in Algebra had gone as far as quadratic equations. The rest of their studies was vernacular reading.

Hindoo College.—The Hindoo College was founded by the personal desire and voluntary contributions of the Hindoo gentlemen of Calcutta; it was benefited by their care, and its efficiency was established by the Secretary, Dr. H. H. Wilson, now Professor Wilson. All the students, 498, learn English and Bengalee, and 448 of them pay for their education; and the paying have increased and the non-paying decreased from 100 to 50. The students are all Hindoos. Its capital on the 20th May, 1836, was 21,000 rupees; 291 students paid 1 at 7 rupees, 5 at 6 rupees, and 285 at 5 rupees; and the annual receipts from tuition were 17,544 rupees, and the disbursements 42,600 rupees annually. On the 30th April, 1844, the tuition receipts were 28,981 rupees, and the total receipts, including interest of capital, 30,952 rupees. The disbursements were 56,948 rupees. The College being now part of the public institutions, the difference is paid by Government.

Moorshedabad Nizamut College.—The Moorshedabad Nizamut College is supported entirely out of the Nizamut Deposit Fund, and forms no charge upon the resources of Government. It is divided into two departments, one for the education of the Sahibzadahs or relations of the Nizamut family, and the other for that of persons of respectability, who are admitted at the discretion of the College Committee. The Nawab distributed the prizes to the students in 1844. The annual resources of the Nizamut funds are 137,932 rupees. The College cost in building in 1843 the sum of 73,000 rupees, and the annual expenses of the College for that year were 29,104 rupees; but the establishment is fixed at 37,000 rupees. The Governor-General and the Nawab are the patrons. The Governor-General's agent at Moorshedabad is the visitor and president of the College Committee, and has the power of a veto on any measure pending a reference to the Governor-General. The Committee consists of the English Judge and Collector, the Nawab and one of his relatives, also the native Dewan or Minister, and Captain Showers. On leaving, a student for superior moral conduct gets an exhibition of 100 rupees. For good conduct in the senior class a horse is given. In the junior class an English saddle, or a gun, foils, &c. Corporal punishment is not permitted; but offenders are debarred from their amusement or exercise. The relatives of the Nizamut family are to have separate seats and separate classes: they cannot enter after 12, nor before 7 years of age. There are 3 English, 3 Arabic, 3 Persian, 3 Bengalee, and 3 Oordoo Scholarships at 60 rupees per mensem, tenable for 3 years. The College is governed by an English principal; but the Ataleeg, who is to be a Shia, is the *custos morum* and resident guardian (under the principal and visitor) of the students of the Nizamut family. There is a library within the walls.

Bhagulpoor Hill School.—The Bhagulpoor Hill School was established to improve the moral character of the rude tribes of these hills. It has been eminently successful, although it had to contend with the

difficulty of the people having a language of their own, and having to teach them Hindee. Drunkenness, which was formerly a vice of those Hill people, is fast disappearing. A regiment of Hill Rangers being raised from amidst the people, the sepoys take great pride in the knowledge their children and themselves derive from the school. In 1843 neither Hindoo nor Moosulman were amongst the pupils—the people belonging to the low castes; but in 1844, 6 Mohamedans and 16 Hindoos were admitted. Seventy of the pupils were learning English.

North-west Provinces.—Returns not having been received from the North-west Provinces since 1843, the number of scholars can only be given for that year.

Agra Government Institutions.—The observations which have been made on the Institutions under the Bengal Government apply to those under the Agra Presidency, and it will be superfluous to particularize. The Institutions which were placed under the general supervision of the Agra Government on the 30th April, 1843, are under the immediate control of the local committees, generally consisting of the chief civil officers at the stations. The instruction is almost universally gratuitous, only 42 students paying, and the system of scholarships obtains. The following are the sums allotted to each Institution :—

TABLE II.

Name of Institutions.	Monthly Amount of Establishment and Contingencies.	Amount appropriated for Scholarships and Stipend.
Benares :—	Rupees.	Rupees.
Sanscrit College	1,105	396
English ditto	1,100	242
Branch School	363	8
Ghazepore School	662	16
Allahabad ditto	738	94
Saugor ditto	548	8
Jubbulpore ditto	365	8
Azimghur ditto	132	8
Goruckpore ditto	303	8
Agra College	2,208	656
Delhi ditto	2,790	780
Bareilly School	516	8
Furruckabad ditto	518	8
Meerut ditto	471	8
Per Mensem	11,819	2,248
Annually	1,68,804	26,976

In the Agra College the Rajah of Bhurtpoor founded a scholarship, and Mr. C. Grant gave a monthly donation for one year to be awarded in prizes.

The Ajmere School had entirely failed, and was abolished on the 1st January, 1843, owing to the low estimation in which it was held by the classes for whom it was intended.

Village Schools.—Previously to any comment on the annexed tables, it would appear desirable to say a few words in regard to the omission

of village schools in the reports of the General Committee. Mr. Adams investigated the state of indigenous education in Bengal and Behar, and made three reports on the subject. These reports came under the consideration of the General Committee in 1838-39. Mr. Adams strongly advocated the establishment of village schools on the ground of the very small proportion of the native children, male and female, capable of receiving instruction, receiving, in fact, any kind of education whatever; he showed by a census of the city of Moorshedabad, taken with minute accuracy, and of a Thanah in each of the districts of Burdwan, Beerbhoom, Behar, and Tirhoot, that there were taught only—

In the city of Moorshedabad . . .	8.3 per cent.
In a Thanah of the district . . .	6.05 „
Ditto Beerbhoom . . .	8.1 „
Ditto Burdwan . . .	16.05 „
Ditto Behar . . .	5.8 „
Ditto Tirhoot . . .	2.5 „

of the whole number of children capable of receiving instruction. This is certainly a melancholy picture of the general literary ignorance which prevailed; and Mr. Adams, with a view to ameliorate such a state of things, proposed to make the then existing schools the nuclei for the extension of village instruction. For this purpose he drew up a code of regulations to embrace an educational survey, division into districts, each with a native agent and examiner of teachers and scholars; supply of four class-books, globes for the village teachers, an English school with its vernacular department in each district, to be *expanded into a normal school* for the improvement of the rural teachers who may *casually be able to attend*. Pupils who have passed Class-book No. 1, to be received into the English school, and there have pecuniary support; local native committees to watch over village masters, and an inspector to be appointed for five districts. Such are the outlines of Mr. Adams's proposition; and, if I understand him aright, that the village schoolmasters were *first to teach themselves* the 4 class-books placed in their hands before they could teach their pupils, his plan involved the elements of probable inefficiency. The General Committee expressed a fear that the "execution of the plan would be almost impracticable." Nevertheless, they very considerably consented to try the experiment upon about 20 rural schools not far from Calcutta, where they could be looked after. The Committee then gave details, going back as far as 1814, of the unsatisfactory results attending the attempts of various European individuals as well as themselves to establish village schools at Ajmere, Chinsurah (where there were 36 at one time), Dacca, Saugor, and Bhaugulpoor. In the end almost the whole of them declined, and were discontinued. From the reports of 1838-9 and 1839-40 I do not discover whether the Government sanctioned the experiment acquiesced in by the General Committee. For myself, I cannot see why village schools should fail more than the schools progressing under the General Committee, provided the masters were competent, and a vigilant system of examinations and inspection obtained. But without normal schools for the formation of masters, little good could be looked for from any attempts to promote village instruction; and I do not perceive that such normal schools are even yet established in Bengal.

It was my wish to have given a clear view of the progress of the

educational institutions from an early period of the General Committee's reports down to the present time, and I went over the several annual reports for that purpose, tabulating the facts I was desirous of recording; but whether owing to changes effected in the institutions themselves, to alterations in the views of the General Committee, or to neglect of system, I early found the object I contemplated could not be realized; nevertheless, as some good would result from a tabulated statement I persevered in my extracts, and the following table is the result of my labours. It will be seen that for the years 1835-6 and 1836-7 I obtained the number of the institutions, the number of the students learning the several classical languages (but no mention is made of the vernaculars), the total number of students, and, for the year 1836-7, the total disbursements. In May, 1836, the stipendiary students were 656, receiving monthly 2,154 rupees, and in April, 1837, the number was reduced to 498, and the stipends amounted to 1,612 rupees per mensem. In the year 1837-8 the altered form of the report gave the total number of masters, institutions (distinguishing their character), the total number of students, the total disbursements, and the total sum that had been received from Government up to that period for educational purposes; but the students are not, as in the preceding two years, classed under the separate languages they learn. A characteristic of this year's report is a note of Mr. H. T. Prinsep dissenting from the opinions of his colleagues, and insisting that *practically* the vernacular classes in the schools have been abolished. In the year 1838-9 the returns differ from the preceding years to the extent of showing in addition whether the masters are English, Pundits, or Moulavies. It has also appended to it a map of India, showing the location of the schools. The report for 1839-40, although very bulky, containing, with Appendix, 350 pages, contains no abstract of the state of the schools, and leaves, therefore, all the columns of my table blank, excepting those of the total number of schools and scholars and disbursements. The balance-sheet is also found in this year. It gives, however, a table showing the employment of some of the students who have passed the colleges and schools, which is annexed.

Note.—While this paper was going through the press, the Bengal Journals of February were received, containing the address of the Governor-General, Sir Henry Hardinge, on the occasion of the annual examinations at the Hindoo College for the award of scholarships. The address contains the following passage:—

“The Government is deeply sensible of the inestimable value of education; and besides another college at Patna since last autumn, arrangements have been made for the establishment in Bengal of 100 schools for instruction in the vernacular.”

TABLE III.—Of Educational Institutions, Teachers, Students, Disbursements, &c., in successive Years, under the Bengal and Agra Governments.

TABLE III.—Of Educational Institutions, Teachers, Students, Disbursements, &c., in successive Years, under the Management of the Government.																								
	Number.	Institutions.				Teachers.			Total Teachers.	Students in								Total Students.						
		Anglo-Vernacular.	Sanskrit.	Arabic.	Persian and Vernacular.	Professors and Masters.	Pundits.	Moulavies, &c.		English.	Sanskrit.	Arabic.	Persian.	Gordoo.	Hindee.	Bengalee.	Oreah.		Mug.	Burmese.				
1835-6	23	..	..	..	..	..	..	..	..	473	218	376	..	..	..	..	..	..	..	3573
1836-7	30	..	..	..	..	..	..	..	..	381	256	385	..	..	..	..	..	..	..	4654
1837-8	38	32	4	4	12	..	..	..	170	..	..	..	..	..	..	..	..	..	..	5196
1838-9	38	38	4	4	15	118	61	54	233	..	..	..	..	..	..	..	..	..	..	5727
†1839-40	50	..	..	..	..	79	1924	..	271	..	..	..	..	..	..	..	..	..	..	6530
*1840-41	51	..	..	..	..	87	2334	..	320	..	..	..	..	..	..	..	..	..	..	7324
*1841-2	51	..	..	..	..	..	..	..	..	426	572	706	1504	1819	2718	142	87	59	..	8203
1842-3	51	..	..	..	..	..	..	..	..	180	371	180	359	931	2956	96	73	71	..	8903
†1843-4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5570
		Disbursements.		Students.			Religion of Students.			Remarks.														
				Amount.																				
		Rs. A. P.		Non-Paying.			Paying.			Rs. A. P.			Christians.			Mahomedans.			Hindoos.			Other Classes.		
1835-6		3,55,195	10 5
1836-7		4,69,632	10 3
1837-8		3,73,142	8 11
1838-9		4,53,990	13 9
*1840-1		4,14,824	8 11
†1841-2		5,31,397	15 9
1842-3		5,87,558	6 1	6589	1614	34,186	7 8	1621	189	253
†1843-4		5,47,196	5 9	3930	1640	38,640	6 6	931	181	147

In 1837 Rajah Chhatra Dhari Sahayee made a donation of £5000 to the General Education Fund. In 1840 the Rajah of Burdwan gave £2500.

* The colleges and schools were thus located—Calcutta, 4; Hooghly, 7; Bengal, 8; Behar, 3; Orissa, 2; Allahabad Division, 8; Eastern Provinces 13; North-west Provinces, 6.

† Not distinguished whether Fundis or Moulavies.

‡ There not being any returns from the Agra Government, the figures relate to the Bengal Presidency alone; with the exception of the disbursements, which are the total expenses of the Bengal and Agra Governments.

The report contains also a minute of Lord Auckland's, embracing his views with respect to native education, drawn up in that able, comprehensive, and searching manner which characterized so many of his records on the council-books of the Bengal Government.

The reports for 1840-41 and 1841-2 give the number of schools and the number of the teachers, but without distinguishing whether the native teachers were Pundits or Moulavies. They give also the total number of pupils and the annual disbursements; the balance-sheet, however, and the students in the several languages are not noticed in any analytical table, but they give the religion of the scholars and the average cost per head at each school in tables which are annexed.

The report for 1842-3 is the most complete in the analytical view it gives, in luminous tables, not only of each institution with regard to scholars, &c., but also of the financial state of each school. It comprises also the returns from both the Bengal and Agra Governments, and only wants the columns added explanatory of the nature of the institutions, and the number and religion of the teachers to give it a complete character. It is to be hoped future returns will embrace all these essential points of information.

The schools in the North-west Provinces being placed under the Agra Government in 1843, the Bengal report for 1843-4 contains only an account of the state of the institutions remaining under that Presidency. A report not having been received from the Agra Government I am disabled from adding, as I had done in 1843, the number of students, &c., to those of the Bengal Presidency; and a further view of the *general* progress of education under both governments necessarily ceases. Nevertheless, there are two or three features in the Bengal report of a satisfactory nature that may be pointed out. The paying students had increased from 1,614 to 1,640, and the amount realized from the pupils from 34,186 rupees to 38,640 rupees. The pupils learning Bengalee also had increased from 2,718 to 2,956, although the total number of pupils had only increased from 5,554 in 1843 to 5,570 in 1844; and it is but reasonable to infer that the institutions in the North-west Provinces have not retrograded.

The table No. III., which I have framed from the various reports, although it does not admit of the progress in *each branch* of the institutions being traced from year to year from the want of uniformity in the annual reports, yet contains satisfactory evidence of the gradual progress of education. The pupils in 1835-6 amounted to 3,573 in 23 schools, and on the 30th April, 1843, they amounted to 8,203 in 51 colleges and schools; and the sums disbursed, which in the first period amounted to 35,519*l.* sterling annually, amounted to 58,755*l.* in 1843! It cannot fail to be remarked how very far in advance of the Parliamentary grants is the liberality of the Court of Directors.

Table IV. exhibits the state of the schools under both governments in 1843; the Agra analysis being taken from the separate schools. Table V. exhibits only the state of the Bengal schools in 1844.

TABLE V.—Statement of Number, Caste, &c. of the Students of the Colleges and Schools in the Bengal Presidency on 30th April, 1844.

Names of Institutions.	Statement showing the Number of Paying Students, and the Amount paid by them, and Students who do not pay.			Statement showing the Number of Students studying each of the Languages taught.								Statement showing the Number of Students of each Caste.					Years from Foundation.				
	Non-Paying.	Paying.	Total Amount Paid.	English.	Arabic.	Persian.	Urdu.	Hindee.	Sanskrit.	Bengalee.	Oreah.	Mug.	Burmese.	Christians.	Mahomedans.	Hindoos.		Other than those three.	Total.	Daily Average Attendance of the Students, from 20th April, 1843, to 30th April, 1844.	
Sanskrit College.	140	..	Rs. . .	72	..	..	..	..	140	..	..	..	..	..	..	..	140	..	140	89	23 Years.
Hindoo College.	50	448	28,872 8 6	498	..	..	..	..	..	498	..	..	..	..	..	..	498	..	498	388	23 ,
Patsalah, attached to ditto.	..	144	864 4 6	..	..	..	..	..	..	144	..	..	..	..	..	..	144	..	144	122	4 ,
School Society's School.	249	202	2,155 13 6	451	..	..	..	..	..	..	..	..	..	..	..	..	451	..	451	339	..
Madressa.	129	42	40 8 0	47	171	..	..	..	..	25	..	..	..	..	..	171	..	..	171	..	20 ,
Medical College.	73	..	..	73	..	..	..	..	..	..	..	..	..	20	4	48	1	73	58	9 ,	
Secondary School.	71	..	..	..	..	..	71	..	..	..	..	..	..	..	55	16	..	71	..	..	..
College of Mahomed Mohsin	519	372	4,481 0 0	632	177	82	..	..	..	632	..	..	..	..	10	263	618	..	891	672	7 ,
Branch School.	212	96	1,114 0 0	250	21	37	..	..	..	250	..	..	..	3	55	250	..	308	254	Attached to College of Mahomed Mohsin at Hoogly.	
Infant School.	40	..	..	40	..	..	..	..	..	40	..	..	..	1	1	38	..	40	30	..	..
Seetapore School.	64	36	212 12 0	100	..	..	..	..	..	100	..	..	..	..	..	100	..	100	80	..	..
Ummerpore School.	102	..	..	102	..	..	..	..	..	86	..	..	..	..	..	102	..	102	82	..	..
Ramree School.	100	..	..	32	..	..	34	..	..	..	..	73	..	5	57	3	35	100	86	6 Years.	

TABLE VI.—Abstract Statement of Receipts of the Education Department, from

Institutions.	Sale of Books.			Tuition.			Deposited by Boys.			Refund Charges.			Ground Rent.			Fines, &c.			Interest.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
Balance of last Account . . . }	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>Institutions at the Presidency.</i>																					
Medical College . . .	.	.	.	.	.	.	.	.	.	873	9	9	.	.	.	43	4	0	.	.	.
Madressa College . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Sanscrit College . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Hindoo College . . .	14	0	0	31,249	2	8	.	.	.	292	12	8	101	2	0	210	0	0	.	.	.
Patsalah	72	4	0	934	14	6	.	.	.	22	11	2	.	.	.	2	8	0	.	.	.
Secretary to the Council of Education . . }	731	15	6	.	.	.	.	.	.	793	12	8	.	.	.	.	.	.	66,475	7	1
Total	818	3	6	32,184	1	2	.	.	.	1,982	14	3	101	2	0	255	12	6	66,475	7	1
<i>Mofussil Institutions, Bengal Presidency.</i>																					
Hoogly College . . .	.	.	.	3,972	14	0	529	8	0	45	14	11	.	.	.	.	.	.	11,590	0	10
Branch School . . .	.	.	.	1,123	8	0	62	0	0	.	.	.	.	.	.	.	.	.	.	.	.
Scetapore School . . .	.	.	.	219	4	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bancoorah School . . .	69	0	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Dacca College . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Commillah School . . .	91	8	6	219	14	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Chittagong School . . .	52	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Cuttack School . . .	325	4	0	155	0	0	.	.	.	50	0	0	.	.	.	.	.	.	.	.	.
Midnapore School . . .	15	9	6	336	4	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Gowahatty School . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Seesaugur School . . .	71	14	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arracan Schools . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Moulmein Schools . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Bhaugulpore Hill School }	62	14	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total	683	3	4	6,031	12	0	601	10	0	95	14	11	.	.	.	.	.	.	11,590	0	10
<i>Institutions in the North-Western Provinces.</i>																					
Benares College . . .	559	14	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ghazipore School . . .	61	4	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Jubbulpore School . . .	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	149	0	0	.	.	.
Agra College . . . . .	.	.	.	.	.	.	.	.	.	82	13	4	.	.	.	.	.	.	3,362	1	1
Delhi College . . . . .	.	.	.	.	.	.	.	.	.	513	0	0	.	.	.	.	.	.	.	.	.
Meerut School	31	1	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Ajmere School	6	0	0	34	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Total	658	4	0	34	0	0	.	.	.	595	13	4	.	.	.	149	0	0	3,862	1	1
Grand Total	2,164	10	10	32,249	13	2	601	10	0	2,674	10	6	101	2	0	404	12	0	81,927	9	0

In the Appendix No. 4 of the Report for 1842-3 is the following statement of the Funds in the hands of the Government Agent:—

	Rupees.
General Fund, in Promissory Notes	5,65,900
Benares College, ditto	1,33,000
Delhi College, ditto	1,70,000
Rajah of Burdwan's Scholarships	13,500
	8,82,400

30th April, 1842, to 30th April, 1843, as furnished by the Accountant General.

Sale of Furniture.	Local Funds.	Draft on General Treasury forwarded for Realization.	Advances Received.	Donation.	Miscellaneous.	Total.	Parliamentary and New Government Grants.	Grand Total.
Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs.	Rs.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
. .	. .	. .	..	..	. .	. .	. .	84,131 10 7
. .	. .	. .	417	600	. .	1,933 13 9	84,722 6 7	86,656 4 4
. .	. .	. .	..	..	. .	. .	32,000 0 0	32,000 0 0
. .	. .	. .	..	..	. .	31,867 1 4	24,669 13 0	24,669 13 0
. .	. .	. .	..	..	. .	1,032 5 8	. .	31,867 1 4
227 2 3	. .	1,469 0 0	..	..	. .	69,697 5 6	2,56,407 6 8	1,032 5 8
227 2 3	. .	1,469 0 0	417	600	. .	1,04,530 10 3	3,97,799 10 3	3,26,104 12 2
. .	2,384 14 4½	. .	..	..	. .	18,523 4 1½	. .	18,523 4 1½
. .	164 0 0	. .	..	..	. .	1,354 8 0	. .	1,354 8 0
. .	1,127 14 2½	. .	..	..	. .	1,347 2 2½	. .	1,347 2 2½
. .	. .	. .	..	..	. .	69 0 8	. .	69 0 8
. .	190 13 4	. .	..	..	. .	190 13 4	. .	190 13 4
. .	1,063 11 11	. .	..	..	. .	1,375 2 5	. .	1,375 2 5
. .	3,552 12 2	. .	..	..	. .	3,654 12 2	. .	3,654 12 2
. .	2,507 1 2	. .	..	..	. .	2,987 5 2	. .	2,987 5 2
. .	. .	. .	..	..	152 11 0	504 8 6	. .	504 8 6
. .	69 11 4	. .	..	..	. .	69 11 4	. .	69 11 4
. .	. .	. .	..	..	. .	71 14 0	3,120 0 0	3,191 14 0
. .	. .	. .	..	..	. .	. .	6,000 0 0	6,000 0 0
. .	. .	. .	..	..	. .	. .	6,000 0 0	6,000 0 0
. .	. .	. .	..	..	. .	73 0 8	3,000 0 0	3,073 0 8
. .	11,060 14 6	. .	..	..	152 11 0	30,221 2 7	18,120 0 0	48,341 2 7
. .	. .	. .	..	..	. .	550 14 8	20,413 5 0	20,973 3 8
. .	. .	. .	..	..	. .	61 4 0	. .	61 4 0
. .	10,247 13 6	3,796 5 8	..	..	. .	145 0 0	. .	145 0 0
. .	. .	. .	..	..	. .	17,989 1 7	. .	17,989 1 7
. .	. .	. .	..	..	. .	513 0 0	. .	513 0 0
. .	. .	. .	..	..	. .	31 1 4	. .	31 1 4
. .	. .	1,094 0 0	..	..	. .	1,138 0 0	. .	1,138 0 0
. .	10,247 13 6	4,890 5 8	..	..	. .	20,437 5 7	20,413 5 0	40,850 10 7
227 2 3	21,308 12 0	6,359 5 8	417	600	152 11 0	1,55,189 2 5	4,36,332 15 3	6,75,653 12 3

Agra College, in Promissory Notes 1,78,400
 Mahomed Mohsin's College, ditto 7,87,400
 Calcutta Hindoo College, ditto 23,000

Rupees 18,71,200

TABLE VII.—*Abstract Statement of the Disbursements of the Education by the Accountant*

[illegible]

Department, from the 30th April, 1842, to the 30th April, 1843, as furnished General.

Purchases of Books.			Contingent Charges.			Deposit Refunded.			Pension.			Ceylon Students.			Building.			Total.		
Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
256	0	0	6,432	15	9	.	.	.	.	.	.	7,487	2	11	1,283	0	0	86,656	4	4
770	0	0	1,376	10	5	.	.	.	2,016	0	0	.	.	.	.	.	.	33,884	13	5
150	0	0	847	9	2	.	.	.	.	.	.	.	.	.	.	.	.	16,528	4	9
1,539	3	9	2,778	2	8	.	.	.	.	.	.	.	.	.	17,856	4	0	78,139	11	4
.	.	.	194	8	5	.	.	.	.	.	.	.	.	.	.	.	.	2,619	7	9
12,886	10	0	6,853	1	0	.	.	.	.	.	.	.	.	.	.	.	.	6,047	8	0
						.	.	.	.	.	.	.	.	.	.	.	.	26,869	5	0
15,595	13	9	18,482	15	5	.	.	.	2,016	0	0	7,487	2	11	19,139	4	0	2,50,745	6	7
1,338	8	6	1,471	1	9	249	2	0	.	.	.	.	.	.	.	.	.	70,366	8	5
483	0	0	186	7	0	284	0	0	.	.	.	.	.	.	.	.	.	7,802	7	0
55	0	0	54	8	6	.	.	.	.	.	.	.	.	.	.	.	.	1,609	8	6
267	1	0	152	12	2	.	.	.	.	.	.	.	.	.	.	.	.	2,515	13	0
34	2	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	34	2	0
220	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	220	0	0
299	15	3	53	1	6	.	.	.	.	.	.	.	.	.	.	.	.	4,561	6	2
770	0	0	356	0	5	.	.	.	.	.	.	.	.	.	.	.	.	19,951	3	1
220	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4,158	13	8
210	0	0	200	0	0	.	.	.	.	.	.	.	.	.	.	.	.	5,192	0	0
346	0	0	0	13	6	.	.	.	.	.	.	.	.	.	.	.	.	4,856	3	2
397	12	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	472	14	0
371	0	0	37	9	8	.	.	.	.	.	.	.	.	.	.	.	.	3,877	9	1
275	0	0	120	0	0	.	.	.	.	.	.	.	.	.	.	.	.	6,139	0	0
200	0	0	972	0	0	.	.	.	.	.	.	.	.	.	.	.	.	8,032	5	4
215	5	0	14	0	0	.	.	.	.	.	.	.	.	.	.	.	.	2,910	0	3
.	.	.	4	2	0	.	.	.	.	.	.	.	.	.	.	.	.	733	12	7
247	13	8	94	11	7	.	.	.	.	.	.	.	.	.	.	.	.	3,012	9	3
325	0	0	214	10	6	.	.	.	.	.	.	.	.	.	.	.	.	5,790	4	0
424	2	3	73	8	0	.	.	.	.	.	.	.	.	.	.	.	.	8,363	0	8
180	0	0	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	4,895	2	3
						.	.	.	.	.	.	.	.	.	.	.	.	3,768	0	0
6,929	11	8	4,005	6	5	533	2	0	.	.	.	.	.	.	.	.	.	1,69,262	10	5
397	1	3	1,551	1	0	.	.	.	600	0	0	.	.	.	.	.	.	29,831	14	1
294	12	0	57	0	0	.	.	.	.	.	.	.	.	.	.	.	.	8,485	1	8
440	0	0	1,231	3	6	.	.	.	.	.	.	.	.	.	.	.	.	9,911	3	6
350	7	3	1,493	12	11	.	.	.	.	.	.	.	.	.	.	.	.	8,076	4	2
445	10	0	76	9	0	.	.	.	.	.	.	.	.	.	.	.	.	4,808	3	0
62	14	3	57	1	6	.	.	.	.	.	.	.	.	.	.	.	.	3,148	7	9
152	0	0	2,935	8	0	.	.	.	.	.	.	.	.	.	.	.	.	2,670	0	0
1,807	8	0	1,486	15	7	.	.	.	.	.	.	.	.	.	.	.	.	32,403	5	6
240	10	0	439	3	6	.	.	.	.	.	.	.	.	.	8,260	8	0	39,225	5	10
250	10	0	204	5	1	.	.	.	.	.	.	.	.	.	.	.	.	13,054	5	6
275	0	0	256	12	3	.	.	.	.	.	.	.	.	.	.	.	.	5,692	4	5
.	.	.	57	0	8	.	.	.	.	.	.	.	.	.	.	.	.	5,705	12	3
						.	.	.	.	.	.	.	.	.	.	.	.	4,538	1	5
4,716	8	9	9,846	8	4	.	.	.	600	0	0	.	.	.	8,260	8	0	1,67,550	5	1
27,242	2	2	33,334	14	2	533	2	0	2,616	0	0	7,487	2	11	27,399	12	0	5,87,558	6	1
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	88,095	6	2
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	675,653	12	3

TABLE VIII.—Abstract Statement of Receipts of the Education Department,

Institutions.	Sale of Books.	Tuition.	Deposited by Boys.	Refund Charges.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
<i>Institutions at the Presidency.</i>				
Balance on the 1st May, 1843 . . . . .	. .	. .	. .	. .
Secretary to the Council of Education	24 0 0	. .	. .	300 0 0
Hindoo College . . . . .	. .	28,981 11 3	. .	132 9 7
Medical College . . . . .	. .	. .	. .	628 0 0
Patsalah	56 1 6	869 15 9	. .	17 6 10
Sanscrit College. . . . .	. .	. .	. .	163 7 8
Madressa . . . . .	. .	. .	. .	40 8 0
School Society's School. . . . .	. .	. .	. .	. .
Total	80 1 6	29,851 11 0	. .	1,282 0 1
<i>Institutions in the Provinces.</i>				
Chittagong School . . . . .	. .	. .	. .	. .
Cuttack	300 0 0	. .	. .	. .
Mahomed Mohsin's College . . . . .	. .	4,182 8 0	195 8 0	31 2 8 $\frac{3}{4}$
Branch School . . . . .	. .	1,093 8 0	99 0 0	0 4 1 $\frac{1}{2}$
Infant School . . . . .	. .	. .	. .	19 5 7 $\frac{1}{2}$
Seetapore School . . . . .	. .	210 12 0	. .	. .
Midnapore School . . . . .	. .	. .	. .	738 8 8
Patna School	15 4 0	. .	. .	. .
Bauleah School	148 2 8	. .	. .	120 0 0
Commillah School . . . . .	. .	266 14 10	. .	. .
Sylhet School . . . . .	. .	. .	. .	. .
Seeksagore School . . . . .	. .	. .	. .	. .
Arracan School (Ramree)	14 6 0	. .	. .	. .
Moulmein School . . . . .	. .	. .	. .	. .
Bhaugulpore Hill School . . . . .	. .	. .	. .	167 0 0
Nowgong School . . . . .	. .	. .	. .	. .
Durrung School . . . . .	. .	. .	. .	. .
Kamroop School . . . . .	. .	. .	. .	. .
Debrooghur School. . . . .	. .	. .	. .	. .
Luckimpore and Dokwakhana } Schools . . . . .	. .	. .	. .	. .
Ten Pergunnah School . . . . .	. .	. .	. .	. .
Bhaugulpore School	36 0 0	. .	. .	. .
Jessore School	124 5 4	. .	. .	. .
Gowahatty School . . . . .	. .	. .	. .	. .
Total	638 2 0	5,753 10 10	294 8 0	1,076 5 13 $\frac{3}{4}$
Grand Total	718 3 6	35,605 5 10	294 8 0	2,358 5 23 $\frac{1}{4}$

Deduct amount allotted to the North-Western Provinces out of the balance on the 30th Department, as per resolution of the Government of Bengal, dated 18th December, Ditto ditto out of the Parliamentary and Government Grants, and of the Interest on the for the year 1843-4, as per ditto

TABLE IX.—Abstract Statement of Disbursements of the Education Department

Institutions.	Establishment.			Scholarships.			Stipend.			House Rent.		
	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
<i>Institutions at the Presidency.</i>												
Secretary to the Council of Education . . . }	4,346	13	6	.	.	.	.	.	.	.	.	.
Hindoo College . . .	45,496	6	0	6,896	3	6	.	.	.	1,680	0	0
Sanscrit College . . .	13,784	10	3	2,619	0	0	748	10	0	.	.	.
Madressa . . .	27,026	2	8	4,010	12	2	.	.	.	.	.	.
Medical College . . .	52,945	9	0	544	0	0	4,192	0	0	.	.	.
Patsalah . . .	2,309	0	0	.	.	.	.	.	.	.	.	.
School Society's School.	6,270	0	0	.	.	.	.	.	.	.	.	.
Total . . .	1,52,178	9	5	14,069	15	8	4,940	10	0	1,680	0	0
<i>Institutions in the Provinces.</i>												
Burrisaul . . .	.	.	.	.	.	.	.	.	.	.	.	.
Bhaugulpore Institution	4,120	0	0	141	15	0	.	.	.	.	.	.
Bhaugulpore Hill School	2,579	9	2	160	0	0	1,173	0	0	.	.	.
Bancoorah . . .	.	.	.	.	.	.	.	.	.	.	.	.
Chittagong . . .	5,435	5	8	257	0	6	.	.	.	.	.	.
Cuttack . . .	3,048	0	0	193	0	0	.	.	.	12	8	0
Dacca . . .	14,967	5	8	1,358	0	0	.	.	.	1,020	0	0
Mahomed Mohsin's College . . . }	61,681	6	11	7,436	1	3½	167	0	0	65	1	6
Branch School . . .	6,579	4	3	162	15	11	.	.	.	.	.	.
Infant School . . .	1,516	2	0½	.	.	.	.	.	.	.	.	.
Seetapore School . . .	2,112	0	0	.	.	.	.	.	.	2	0	0
Ummerpore School . . .	.	.	.	.	.	.	.	.	.	.	.	.
Jessore School . . .	3,980	0	0	147	3	7	.	.	.	.	.	.
Seesaugore School . . .	2,304	0	0	.	.	.	.	.	.	40	0	0
Gowahatty School . . .	6,024	4	7	96	0	0	.	.	.	.	.	.
Midnapore School . . .	5,052	0	0	192	0	0	.	.	.	.	.	.
Patna School . . .	6,540	12	8	196	6	0	.	.	.	600	0	0
Bauleah School . . .	3,264	0	0	174	7	0	.	.	.	.	.	.
Ramree School . . .	2,288	0	0	96	0	0	.	.	.	.	.	.
Sylhet School . . .	2,600	0	0	.	.	.	.	.	.	.	.	.
Moulmein School . . .	5,293	2	0	.	.	.	.	.	.	.	.	.
Mergui School . . .	358	13	0	.	.	.	.	.	.	.	.	.
Commillah School . . .	4,127	5	4	.	.	.	.	.	.	.	.	.
Durrung School . . .	749	4	7	.	.	.	.	.	.	.	.	.
Luckimpore School . . .	260	0	0	.	.	.	.	.	.	.	.	.
Dukna Khana School . . .	195	0	0	.	.	.	.	.	.	.	.	.
Total . . .	1,45,075	11	10½	10,611	1	3½	1,340	0	0	1,739	9	6
Grand Total . . .	2,97,254	5	3½	24,681	0	11½	6,280	10	0	3,419	9	6

from 30th April, 1843, to 30th April, 1844, as furnished by the Accountant General.

Purchase of Books.			Contingencies.			Pensions.			Batta, Gratuity, and House Rent, &c., of the Professors and others.			Ceylon Students.			Total.		
Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.	Rs.	A.	P.
2,691	15	0	3,687	9	6	.	.	.	.	.	.	.	.	.	10,726	6	0
1,200	0	0	1,675	8	3	.	.	.	.	.	.	.	.	.	56,948	1	9
300	0	0	513	3	0	.	.	.	.	.	.	.	.	.	17,965	7	3
840	0	0	2,390	10	4	2,016	0	0	.	.	.	.	.	.	36,283	9	2
.	.	.	5,174	4	9	.	.	.	10,918	8	0	3,430	11	9	77,205	1	6
40	0	0	255	9	0	.	.	.	.	.	.	.	.	.	2,604	9	0
220	0	0	.	.	.	.	.	.	.	.	.	.	.	.	6,490	0	0
5,291	15	0	13,696	12	10	2,016	0	0	10,918	8	0	3,430	11	9	208,223	2	8
300	0	0	.	.	.	.	.	.	.	.	.	.	.	.	300	0	0
360	0	0	.	.	.	.	.	.	.	.	.	.	.	.	4,621	15	0
240	0	0	.	.	.	.	.	.	.	.	.	.	.	.	4,152	9	2
20	0	0	.	.	.	.	.	.	.	.	.	.	.	.	20	0	0
240	0	0	54	12	0	.	.	.	.	.	.	.	.	.	5,987	2	2
300	0	0	37	4	0	.	.	.	.	.	.	.	.	.	3,590	12	0
840	0	0	130	8	0	.	.	.	.	.	.	.	.	.	18,315	13	8
1,467	14	6	2,318	14	2	.	.	.	.	.	.	.	.	.	73,136	6	4½
420	0	0	359	9	0	.	.	.	.	.	.	.	.	.	7,521	13	2
60	0	0	33	12	6	.	.	.	.	.	.	.	.	.	1,609	14	6½
240	0	0	81	12	0	.	.	.	.	.	.	.	.	.	2,435	12	0
240	0	0	.	.	.	.	.	.	.	.	.	.	.	.	240	0	0
240	0	0	138	11	9	.	.	.	.	.	.	.	.	.	4,505	15	4
200	0	0	46	11	6	.	.	.	.	.	.	.	.	.	2,590	11	6
300	0	0	250	0	0	.	.	.	.	.	.	.	.	.	6,670	4	7
300	0	0	120	0	0	.	.	.	.	.	.	.	.	.	5,664	0	0
360	0	0	129	14	0	.	.	.	.	.	.	.	.	.	7,827	0	8
360	0	0	250	0	0	.	.	.	.	.	.	.	.	.	4,048	7	0
220	0	0	243	1	0	.	.	.	.	.	.	.	.	.	2,547	1	0
260	0	0	.	.	.	.	.	.	.	.	.	.	.	.	2,860	0	0
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	5,293	2	0
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	358	13	0
240	0	0	.	.	.	.	.	.	.	.	.	.	.	.	4,367	5	4
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	749	4	7
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	260	0	0
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	195	0	0
7,207	14	6	4,194	13	11	.	.	.	.	.	.	.	.	.	1,70,169	3	1
12,499	13	6	17,891	10	9	2,016	0	0	10,918	8	0	3,430	11	9	3,78,392	5	9
Balance in favour of the Education Department on the 30th April, 1844															99,201	8	7¼
Company's Rupees															4,77,593	14	4½
Allotted to the Agra Government															1,56,153	8	6
Total Rupees															6,33,747	6	10¼

TABLE X.—*Employment of the Students who have left the Government Schools and Colleges, up to 1839-40.*

No.	Employment.	Amount of Salaries per Month	
		Rs.	Rs.
83	English Teachers	From 20 to	50
33	Arabic Teachers	„ 30 to	60
133	Persian Teachers	„ 10 to	20
50	Sanscrit Teachers	„ 16 to	60
20	Bengalee Teachers	„ 16 to	20
4	Hindee Teachers	„ 16 to	20
5	Urdu Teachers.	„ 16 to	20
2	Superintendents of Abkaree . . .	At	500
23	Deputy Collectors	„	300
7	Sudder Ameens	„	300
18	Munsiffs	„	100
10	Zillah Pondits	„	60
19	Zillah Moulavies	„	80
2	Assistant Secretaries	„	50
1	Ditto	„	200
102	Dewans and Banians	From 10 to	500
3	Nazeers	At	20
20	Native Doctors	„	20
3	Apothecaries	„	15
57	Assistant Surveyors	„	40
170	Writers	From 10 to	100
61	Merchants	„	100
128	Vakeels	At	15
25	Sub-Assistant Surgeons	„	100
16	Record Keepers	From 30 to	50
425	Miscellaneous	„	„

The above table is exceedingly satisfactory, as it testifies to the practical advantages, not only to the parties themselves, but to the public interests, resulting from the liberal policy of the East India Company. Independently of the 330 tutors or teachers of languages, English, Arabic, Sanscrit, &c. sent into native society, the highly responsible Government offices of Deputy Collectors, Sudder Ameens, and Munsiffs are filled by young men not only of a higher intellectual standard, but, it is to be hoped, of a higher moral impress than ordinary. The Vakeels, too, who practise in the courts of law, will necessarily be better qualified than the old Vakeels.

TABLE XI.—I. *List of the Government Schools under the late General Committee of Public Instruction, at the end of 1840-41, i.e., on the 30th April, 1841.*

Those schools marked thus (a) have aid in books, but no other fixed allowance is given.—In the Average Attendance column, Sy. S. signifies Secondary School—E. D., English Department—O. D., Oriental Department—H. D., Hindoo Department—V. D., Vernacular Department—(b) that no Return has been received.

Names of Schools.	Number of Masters.	Number of Assistants.	Number of Pupils.	Religion.				Average Attendance.	By whom Superintended.	Average Monthly Expense, from 30th April, 1840, to 30th April, 1841.	Average Cost Monthly to Government of Education per Head.
				Christians.	Hindoos.	Mahomedans.	Other Castes.				
CALCUTTA.											
Hindoo College	6	15	557	..	557	..	..	431 {	Sub-Committee, N. Managers, and Principal	Rs. 4,618 13 2	8 4 8
Medical College	7	2	79	25	51	3	..	58 { Sy. S. 55 E. D. 100 O. D. 130	Sub-Committee and College Council	4,926 9 3*	62 5 9*
Mahomedan Madrasa	2	11	252	..	..	252	..	78 {	Sub-Committee and Superintendent Major Onseley	2,469 7 7	9 12 9
Sanscrit College . . . .	..	11	123	..	123	..	..	78 {	Sub-Committee and Secretary	1,151 7 4	9 5 9
HOOGHLY.											
College of Mahomed Mohsin	3	37	1,076	16	735	325	..	E. D. 603 O. D. 196 {	Sub-Committee and Principal	5,927 2 0	5 8 1
Hooghly Branch School	2	8	393	1	300	92	..	230 {	Sub-Committee and Superintendent	465 9 8	1 2 11
Hooghly Infant School	1	1	60	4	48	8	..	44 {	Ditto	108 2 11	1 12-10
Seetapore Branch School	1	..	76	1	75	..	..	54 {	Ditto	109 11 6	1 7 1
(a)Tribanay Probational School	2	1	97	..	97	..	..	(b) {	Ditto	4 3 6	0 0 8
(a)Umerpore Probational School	1	1	86	..	86	..	..	61 {	Ditto	8 12 5	0 1 9

* This sum, however, also provides, as per General Order dated 12th August, 1839, for 70 secondary school-boys, for hospitals, museums, dispensaries, &c. The stipend of 5 rupees per mensem, received by each of the secondary schools, is paid from the Presidency Pay Office.

I. List of the Government Schools under the late General Committee of Public Instruction, &c.—continued.

Names of Schools.	Number of Masters.	Number of Assistants.	Number of Pupils.	Religion.				Average Attendance.	By whom Superintended.	Average Monthly Expense, from 30th April, 1840, to 30th April, 1841.	Average Cost Monthly to Government of Education per Head.
				Christians.	Hindoos.	Mahomedans.	Other Castes.				
DIVISION IV.—NORTH-WESTERN PROVINCES.											
Agra College	3	14	251	11	200	40	..	E. D. 76 O D. 109	Visitor Oriental College, J. Thomason, Esq., Local Committee, and Principal . .	Rs. A. P. 1,160 2 4	Rs. A. P. 4 9 11
Delhi College and Institution.	3	14	166	4	93	69	..	E. D. 55 O. D. 77	Ditto	1,258 4 3	7 9 3
Bareilly School	1	1	72	..	63	9	..	47	Local Committee	332 8 0	4 9 10
Meerut School	2	1	86	1	47	38	..	63	Ditto	428 0 6	4 15 7
Furruckabad School	2	2	116	2	96	18	..	70	Ditto	408 14 0	3 8 4
Ajmeer School	2	4	156	4	119	33	..	72	Ditto	473 6 4	3 0 6
Total	79	192	7,324	196	5,494	1,420	214	4,418		33,303 1 7	203 10 6

II. List of the Government Institutions under the Council of Education and Government, in the General Department, at the end of 1841-2, i.e., on the 30th April, 1842.

CALCUTTA.										
Hindoo College	5	17	520	..	520	..	..	427	4,763 1 1	9 2 6
Medical College	7	4	87	25	60	2	..	M. C. 68 Sy. S. 65	6,407 5 3	73 10 4*

Mahomedan Madrassa . . .	2	11	253	..	253	..	{ E. D. 91 O. D. 120	{ Secretary of Council of Education and Superintendent Major Onseley Secretary of Council of Education	{ 2,779 9 8 1,413 4 10	{ 10 15 9 11 15 7
Sanserit College . . . . .	..	10	118	..	..	118	80			
HOOGHLY.										
College of Mohammud Mohsin	4	39	964	16	621	327	{ E. D. 608 O. D. 167	{ Secretary of Council of Education and Principal Ditto Ditto Ditto Ditto Ditto	{ 6,292 5 4 520 2 0 126 4 9 262 5 2 1 10 0 9 10 0	{ 6 8 5 1 6 7 2 5 5 1 13 9 0 0 4 0 1 6
Hooghly Branch School . . .	2	8	368	2	297	69	237			
Hooghly Infant School . . .	1	1	54	4	45	5	40			
Seetapore Branch School . . .	2	5	141	1	100	40	75			
(a) Tribanue Probational School	2	1	68	..	68	..	(b)			
(a) Umerpore Probational School	2	1	100	..	100	..	89			
DIVISION I.—BENGAL.										
Section I.										
(a) Bancoorah Probational School	1	2	199	..	188	11	34	{ Local Committee and Government (General Department) Ditto	{ 1 15 8 340 0 6	{ 0 0 2 2 2 5
Jessore School	1	4	158	..	156	2	67	{ Local Committee, Principal, and Government (General Department) Local Committee and Government (General Department)	{ 971 13 2	{ 2 13 5
Dacca College	3	8	342	24	277	41	165	{ Local Committee and Government (General Department) Local Committee and Government (General Department)	{ 331 8 2 545 15 11 272 15 1 6 5 4 23 5 4	{ 3 15 10 5 3 2 1 8 8 0 1 8 0 2 5
Comillah School	2	1	83	1	74	8	50			
Chittarong School	2	3	105	11	92	2	83			
Beauteah School	2	2	177	2	174	1	(b)			
(a) Barrisaul Probational School	1	2	61	8	50	3	(b)			
(a) Sylhet Probational School .	1	2	151	4	127	20	(b)			
Orissa.										
Section II.										
Cuttack School	2	2	86	9	70	7	62	{ Ditto Ditto	{ 283 7 6 511 12 4	{ 3 4 9 3 6 11
Midnapore School	2	4	149	3	144	2	114			

• Vide note supra to Medical College.

II. List of the Government Institutions under the Council of Education and Government, &c.—continued.

Names of Schools.	Number of Masters.	Number of Assistants.	Number of Pupils.	Religion.				Average Attendance.	By whom Superintended.	Average Monthly Expense, from 30th April, 1841, to 30th April, 1842.	Average Cost Monthly to Government of Education per Head.	
				Christians.	Hindoo.	Mahomedans.	Other Castes.					
THE EASTERN PROVINCES.												
Section III.												
Gohawatee School	2	3	171	..	101	70	..	*212 { 90 69 58 27 63 75 (b) { 50 (b) (b)	Local Committee and Government (General Department)	681 12 4	3 15 9	
Gohawatee Branch School†:—									Ditto	}	
Nilachol . . . . .	..	..	..	..	..	..	..
Pandu . . . . .	..	..	..	..	..	..	..
Beltulla . . . . .	..	..	..	..	..	..	..
Amingong . . . . .	..	..	..	..	..	..	..
North Gohawatee . . . . .	..	..	..	..	..	..	..
Seesaugor School	2	1	75	2	60	13	..					
{ Akeyab School	2	3	56	8	3	1	41					
Arracan { Ramree School	1	3	79	1	1	46	31					
Moulmein School	2	1	65	15	3	6	41					
Tevoy and Mergui Branch Schools	{	Ditto	228 2 2	2 14 2		
		Ditto	500 0 0	7 11 1	
DIVISION II.—BEHAR.												
Patna School	2	3	107	17	71	19	..	73 {	Local Committee and Government (General Department)	785 0 11	7 5 4	
Bhaugulpore Institution	2	1	66	1	63	2	..	49	Ditto	392 6 11	5 15 1	
Bhaugulpore Hill School	1	1	104	11	93	67	Ditto	325 7 11	3 2 1	

DIVISION III.—ALLAHABAD DIVISION.									
Benares English Seminary, Branch School	4	6	19	15	166	10	..	131	Ditto
Benares Oriental College . . . .	..	15	110	..	110	..	..	115†	Ditto
Ghazepore School	2	1	183	15	124	44	..	115	Ditto
Allahabad School	2	6	103	6	81	16	..	..	Ditto
Saugor School	2	5	222	2	202	18	..	E. D. 77	Ditto
Jubbulpore School	1	4	174	7	122	45	..	H. D. 110	Ditto
Azimghur School	2	4	246	4	210	32	..	E. D. 52	Ditto
Goruckpore School	2	1	52	..	39	13	..	V. D. 90	Ditto
								O. D. 113	Ditto
								E. D. 29	Ditto
								(b)	Ditto
DIVISION IV.—NORTH-WESTERN PROVINCES.									
Agra College	3	16	346	2	260	65	..	E. D. 88	Visitor, Local Committee, and Principal
Delhi College and Institution	3	20	426	10	214	202	..	O. D. 124	Ditto
Bareilly School	2	2	85	..	77	8	..	E. D. 106	Ditto
Meerut School	2	1	67	1	41	25	..	O. D. 140	Ditto
Furruckabad School	2	5	108	..	81	27	..	72{	Local Committee and Government (General Department)
Ajmeer School	2	4	171	5	125	41	..	53	Ditto
								81	Ditto
								48	Ditto
Total	87	233	7,391	240	5,435	1,507	209	5,019	
									41,169 14 0 247 15 6

* An error ; but is so stated in the local return.

† Elementary, and not directly under this office.

‡ An error, see C. 4 ; but sic in local returns.

The preceding 11 tables suggest the following observations. The first feature is the proportion of the Mahomedan students to the Hindoo. Opinions are expressed in the reports that the Mahomedan population are averse to receive European instruction; but the final numbers in the returns do not seem to authorize these opinions. The total number of pupils in 1843 was 8,203, under the Bengal and Agra governments, and of this number 1,621 were Moslems, and 6,140 Hindoos. Some statisticians have estimated the Mahomedan population as low as 1 Mahomedan to 14 Hindoos; while the highest estimate, I believe, does not exceed 1 to 9. In either case, the proportion of the Mahomedan students far exceeds the proportion of the Hindoo students relatively to their respective population, being, in fact, 1 in 5.06 of the whole students. The next feature is, that more than five-eighths, or 5,132 of the whole students learn English; while only 426 learn Sanscrit, 572 Arabic, and 706 Persian. The two former are necessary in the study of Hindoo and Mahomedan law; and it would hence appear that those studies can scarcely be prosecuted with a vigour proportioned to their importance. The Bengal language, after English, has the greatest number of students, viz., 2,718; followed by the Hindee, 1,819, and Oordoo 1,504, the last two being chiefly spoken under the Agra Government. There are 253 Christians in the schools, and 189 who are neither Christians, Mahomedans, nor Hindoos: these are chiefly Buddhists, at Moulmein, or low castes of the Bhaugulpoor Hills. A marked feature of the tables also, is the fact that, under the Agra Government, out of 2,420 pupils, only 42 pay for instruction. In Bengal, 1,572 pay, and 4,211 receive gratuitous instruction. This is a questionable, but probably inevitable policy at the present time; and the Bengal Government are desirous of modifying it. The Bombay Government have found advantages in imposing a school-fee, although very trifling in amount.

It being quite impossible to appreciate fully the mastery which the native mind is capable of obtaining over European subjects of science and literature, without a perusal of the examination papers for senior and junior scholarships, I annex some of them from various colleges; and as from the details which I have given respecting the mode of conducting examinations collusion amongst the students would appear to be impracticable, I presume others, like myself, will feel a surprise which would lead some to doubt of the possibility of a native of India attaining the proficiency described, were it not that the high character of those who attest this proficiency in their reports place beyond all question the facts, and it is only left to us to express our admiration at results so unexpected and gratifying.

Bengal has several orphan and private schools, with the details of which I am unacquainted; moreover, they do not come within the objects of the present paper.

Scholarship Examination Questions for 1842-43.

LITERATURE.—Senior.

Subject for Essay.—"On the effects produced on the fortunes of different nations, and on mankind in general, by the individual character of remarkable persons, illustrated from History."

" Or let my lamp at midnight hour
 Be seen in some high lonely tower,
 Where I may oft outwatch the Bear
 With thrice-great Hermes, or unsphere
 The spirit of Plato, to unfold
 What worlds or what vast regions hold
 The immortal mind that hath forsook
 Her mansion in this fleshly nook :
 And of those demons that are found
 In fire, air, flood, or under ground,
 Whose power hath a true consent
 With planet or with element.

Some time let gorgeous Tragedy
 In scepter'd pall come sweeping by,
 Presenting Thebes or Pelops' line,
 Or the tale of Troy divine ;
 Or what (though rare) of later age
 Ennobled hath the buskin'd stage."

1. What is the meaning of " outwatch the Bear ?"
2. Who is " thrice-great Hermes ?"
3. What is the meaning of " unsphere the spirit of Plato ?"
4. For what purpose does the Poet desire to unsphere the spirit of Plato, and why does he fix upon Plato for that purpose ?
5. What is the meaning of " a true consent with planet or with element ?"
6. Write out the substance of the six last lines in prose, substituting literal for figurative expressions, and expanding the whole, so as to show whether you completely understand the force of every expression, the meaning of every allusion, &c.
7. From what author and from what poem are these lines taken ?

It is an assured truth which is contained in the verses :

" To have carefully learned the ingenious arts
 Softens the manners and takes off their rudeness."

Learning taketh away the wildness and barbarism and fierceness of men's minds, but indeed the accent had need be upon *carefully*, for a little superficial learning doth rather work the contrary effect. It taketh away all levity, temerity, and insolency, by copious suggestion of all doubts and difficulties, and acquainting the mind to balance reason on both sides, and to turn back the first offers and conceits of the mind, and to accept of nothing but examined and tried. It taketh away vain admiration of any thing, which is the root of all weakness ; for all things are admired either because they are new, or because they are great. For novelty, no man that wadeeth in learning or contemplation thoroughly, but will find that printed in his heart ; " There is nothing new upon the earth." Neither can any man marvel at the play of puppets, that goeth behind the clown, and deviseth well of the motion.

And for magnitude, as Alexander the Great, after that he was used to great armies, and the great conquests of the spacious provinces in Asia, when he received letters out of Greece of some fights and services there, which were commonly for a passage or a fort or some walled town, at the most, he said, " It seemed to him that he was advised of the battles of the frogs and mice, that the old tales went of."— So certainly if a man meditate upon the universal frame of nature, the earth with men upon it, (the divineness of souls excepted,) will not seem much other than an ant-hill, where some ants carry corn, and some carry their young, and some go empty, and all to and fro, a little heap of dust. It taketh away or mitigateth fear of death, or adverse fortune, which is one of the greatest impediments of virtue and imperfections of manners. For if a man's mind be deeply seasoned with the consideration of the mortality and corruptible nature of things, he will easily concur with Epictetus, who went forth one day and saw a woman weeping for her pitcher of earth that was broken, and went forth the next day and saw a woman weeping for her son that was dead, and thereupon said, yesterday I saw a fragile thing broken, to-day I saw a mortal thing perish.

And therefore Virgil did excellently and profoundly couple the knowledge of causes and the conquest of all fears together as things concomitant.

Happy he who hath been able to discover the causes of things, and to cast under his feet all fears and inexorable fate, the noise of the devouring gulf.

It were too long to go over the particular remedies which learning doth minister to all the diseases of the mind; sometimes purging the ill humours, sometimes opening the obstructions, sometimes helping digestion, sometimes increasing appetite, sometimes healing the wounds and exulcerations thereof, and the like, and therefore I will conclude with that, which is worth all the rest, which is that it disposeth the constitution of the mind not to be fixed and settled in the defects thereof, but still to be capable and susceptible of growth and reformation.

For the unlearned man knows not what it is to descend into himself, or to call himself to account, nor the pleasure of that most delightful life, the feeling that we are day by day improving. The good parts he hath, he will learn to show to the full, and to use them dexterously, but not much to increase them. The faults he has, he will learn how to hide and colour them, not much to amend them, like an ill mower that mows on still, and never whets his scythe; whereas with the learned man it fares otherwise, that he doth ever intermix the correction and amendment of his mind with the use and employment thereof.

Nay farther, in general and in sum, certain it is, that truth and goodness differ but as the seal and the print, for truth prints goodness, and they be the clouds of error, which descend in the storms of passions and perturbations.

1. "But indeed the accent need be upon *carefully*."

Explain this fully, giving the reason why the accent need be upon *carefully*.

2. "No man that wadeth in learning or contemplation thoroughly."

Is the word wadeth, literal or figurative; if figurative, give an example of its literal meaning?

3. "And for the magnitude, as Alexander the Great," &c.

Explain this fully.

What sort of person is Alexander compared to?

What are the great armies and great provinces of Asia compared to?

What are the fights and services mentioned in the letters out of Greece compared to by Alexander the Great in this story? And what are they here compared to by the author?

4. "Like an ill mower that mows on still and never whets his scythe."

What is the scythe compared to, and what is the whetting of it compared to?

5. "Truth and goodness differ but as the seal and the print, for truth prints goodness, and they be the clouds of error which descend in the storms of passions and perturbations."

Explain this as fully as you can.

6. From what author and from what work is this passage taken?

MATHEMATICS.—Senior.

1. The angles which one right line makes with another upon one side of it, are either two right angles, or are together equal to two right angles.

2. Define a parallelogram. Parallelograms on the same base and between the same parallels are equal to one another. Show that if any quadrilateral figure be bisected by both its diagonals it is a parallelogram.

3. To describe upon a given right line a segment of a circle which shall contain an angle equal to a given rectilineal angle.

The base, the vertical angle, and one of the other sides of a triangle are given; construct it.

4. Equal triangles which have one angle of the one equal to one angle of the other, have their sides about the equal angles reciprocally proportional: and triangles which have one angle of the one equal to one angle of the other, and their sides about the equal angles reciprocally proportional, are equal.

5. A common tangent is drawn to two circles which touch externally: if a circle be described on that part of it which lies between the point of contact, as a diameter, this circle will pass through the points of contact of the two circles, and touch the line joining their centres.

6. Extract the square root of $6x - 28x^2 + 49x^4 + \frac{9}{4} - 17x^2$. And add

$$\frac{1}{a-b} \cdot \frac{1}{a-c} \cdot \frac{1}{b+c} + \frac{1}{b-a} \cdot \frac{1}{b-c} \cdot \frac{1}{a+c} + \frac{1}{c-a} \cdot \frac{1}{c-b} \cdot \frac{1}{a+b}.$$

7. If the product ab be divisible by c , and b and c are prime to each other, then will c be a division of a .

8. Solve the equations,

$$\alpha. \quad \frac{18x-19}{28} + \frac{11x+21}{6x+14} = \frac{9x+15}{14}.$$

$$\beta. \quad \begin{cases} \sqrt{y} - \sqrt{y-x} = \sqrt{20-x}. \\ \sqrt{y-x} : \sqrt{20-x} :: 3 : 2. \end{cases}$$

$$\gamma. \quad \begin{cases} y^4 - 432 = 12xy^2. \\ y^2 = 12 + 2xy. \end{cases}$$

9. Expand $\{x^{\frac{1}{2}} - y^{\frac{1}{2}}\}^{2m-3}$ by the Binomial theorem to 5 terms, and write down the $\frac{2n+1}{2}$ th term.

10. Convert 423154 from a scale whose radix is 6, to one whose radix is 12.

Find two fractions whose denominators shall be 7 and 9, and their sum equal to $\frac{19}{21}$.

11. Trace the changes in the sign and magnitude of $\sec. A$, as A increases from 0° to 360° .

$$\text{Show that } \tan. \frac{2A}{2} = \frac{2 \sin. A - \sin. 2A}{2 \sin. A + \sin. 2A}.$$

12. A person standing at the edge of a river observes that the top of a tower on the opposite side subtends an angle of 55° with a horizontal line drawn from his eye: receding 30 feet, he then finds it to subtend an angle of 48° : determine the breadth of the river.

$$\log. \sin. 7 = 9.08589$$

$$\log. \sin. 35 = 9.75859$$

$$\log. \cos. 42 = 9.87107$$

$$\log. 270 = 2.43136$$

$$\log. 1.0493 = .02089.$$

13. Express $(\cos. \theta)^n$ in terms of the cosines of multiples of θ , n being any positive integer. Ex. $(\cos. \theta)^6$.

14. Find a length of a perpendicular, let fall from a given point on a given straight line.

15. Find the equation to the tangent of a parabola: when will the normal at the extremity of the latus rectum cut the axis of y ?

16. The rectangle contained by the perpendiculars let fall from the foci of an ellipse or hyperbola on the tangent at any point, is equal to the square of the semi-minor.

17. The equation to a conic section is $5y^2 + 2xy + 5x^2 - 12x - 12y = 0$, find its centre, and the magnitudes and positions of its principal axes.

HISTORY.—Senior.

I. When did the thirty tyrants hold sway in Athens? What circumstances led to this sway? What bearing had the politics of Sparta on Athens at the time? Mention as many of the names of the thirty as you recollect. What was the occasion of the death of Theramenes? Had he a nickname, and what was his character? How did Critias come by his death; and who was the leader by whom the thirty tyrants were overthrown?

II. What do you know respecting the philosophy of Plato? How did it differ from the system of Epicurus?

III. When did the Macedonian or Grecian kingdom cease in Syria, and to what power and leader did it yield?

IV. Do you know anything concerning the route by which the army of Alexander the Great returned from the Indus to Babylon? Had he a fleet? Who commanded it? Whence and to what place did it steer, and where did the sea rejoin the land force?

V. Wherein consisted the most striking difference between the character as rulers of Trajan and Hadrian,—and did not the latter always remain at Rome, fascinated by the amusements of that capital?

VI. What were the circumstances that led to the elevation of the Emperor Maximin, and what was his character as a man and a ruler?

VII. What do you know respecting the history of the Emperor Diocletian? What is that event in it similar to one in the life of Charles V., Emperor of Germany?

VIII. What do you know regarding the character of the Emperor Julian? In his march through Assyria was there any incident similar to what we read of in the history of the states of Holland? Had Julian a fleet?—if so, how got it into the Tigris? What became of it? Describe the circumstances of the death of Julian.

IX. What were the principal events in the reign of Henry VII. of England—and what was the state of the police during the greater part of his reign?

X. What caused the civil war in Charles the First's time—and what was the court of Star Chamber? and mention the names of some of those who suffered by its sentence—and the reasons of their being arraigned by that court.

XI. What were the principal events of Queen Anne's reign? Mention also the principal statesmen and literary characters of that epoch.

XII. What was the character of Akhbar's reign? Where did he usually reside? Who were the remarkable characters of his court? Mention his contemporaries on the principal Asiatic and European thrones.

XIII. What circumstances led to the elevation of Aurungzebe? Had he many competitors for the throne? What was his character as a ruler and a man? Who was Sevajee, and did he ever come into collision with Aurungzebe—and on what occasion? Do you recollect any thing about Aurungzebe's visit to Benares?

XIV. State the circumstances that put an end to the dynasty of Shah Soojah as Soobadar of Bengal? When was the battle of Gheria fought? Who was the successful commander, and what results did his victory lead to?

NATURAL PHILOSOPHY.—*Senior.*

1. Define the centre of gravity, and also the specific gravity of a body. Define a fluid, and state some of the properties of fluids.

2. Two given forces act upon a body considered as a point in different directions; determine the direction and magnitude of a third force to keep the body at rest.

3. Explain how it is that a ship is enabled to sail in a direction nearly opposite to that of the wind.

4. Where is the fulcrum in an oar? Graduate the steelyard having a moveable fulcrum.

5. What practical method would you adopt for measuring the solid contents of an irregular body? Compare the specific gravity of two fluids by weighing a globe in each.

6. State and explain the hydrostatic paradox.

7. Explain the action of the common suction pump; and show whether the force requisite to draw up the piston increases or diminishes after each stroke.

8. Will a heated body cool sooner in a vacuum or in air, and why? If the effect of heat be to make bodies expand, how is it that ice floats in water?

9. Explain fully the use of the condenser in the steam engine.

10. An object is placed between two parallel mirrors A and B, at a distance of one foot from A, and two feet from B; find the distances of the 3rd and 4th images in A from the object.

11. Give a brief description of the eye, and show how an image is formed on the retina. What is the cause of short-sightedness, and what lens is used to rectify it.

12. Has the refraction of the atmosphere a tendency to increase or diminish the length of each day? How do you account for twilight; why is it longer the further you go from the equator?

13. Has a body the same weight at different places on the earth's surface? How is the weight of a body at the Equator compared with its weight nearer the pole.

14. State the three laws observed by Kepler concerning the motions of the planets; and the conclusion deduced from these laws about the force acting upon them.

*Senior Scholarships.*LITERATURE.—*Answers.**Poetry.*

1st. The meaning of "outwatched the Bear." is to watch till the constellation Bear disappeared; that is, to remain watching till that constellation was set.

2nd. Mercury is thrice great Hermes.

3rd. The meaning of the passage "unsphere the spirit of Plato," is to break open, as it were, the spirit of Plato.

4th. The poet, in order to unfold what worlds, or what vast regions hold the immortal mind which has left the fleshly body, wishes to unsphere the spirit of Plato; and the reason why he chose Plato for that purpose is, that Plato has taught the immortality of the soul, and therefore the poet has very properly fixed upon him for this purpose.

5th. This passage, "a true consent with planet or with element," means a just agreement or coincidence with planet or with element; and this observation is just, because the poet says, that the power of demons has a true consent with planet or with element. The power of demons is apt to do evil, as the evil influence of planets which, according to superstitious notions, is considered as ominous.

6th. Let gorgeous tragedy come in scepter'd pall; for some time, presenting before the stage, either anything regarding Thebes, or the Pelopidæ, or any thing respecting the tale of ancient Troy, or that which, in modern times, has improved the buskined stage.

7th. This passage is taken from Milton's *Il Penseroso*.

DEGUMBER BISSWAS.

Prose.

1st. "But indeed the accent had need be upon carefully." This passage is explained as follows;—The author is here speaking of learning, and therefore he says, that the accent had need be upon carefully, that is, the word is to be used carefully, lest a little and superficial knowledge of any thing is to be understood by the word learning, as such knowledge often happens to pass for learning. This passage brings to my mind a couplet of Pope, which is somewhat similar to it.

"Little learning is a dangerous thing,

Drink deep or taste not the Pyrean spring."

2nd. The word wadeth is figurative here.

3rd. The author compares Alexander the Great to the astronomer or the philosopher, who meditates upon the universal frame of nature.

The fights and services mentioned in the letter out of Greece, are compared by Alexander to the battle of the frogs and mice; that is, they are trifling and of very little importance.

4th. The scythe is compared to the faults of the man who tries to colour and hide them, and the whetting of it, is compared to the amendment of those faults.

5th. This is taken from Bacon's advancement of Learning.

DEGUMBER BISSWAS, 1st Class.

PRIZE ESSAYS.

On the effects produced on the fortunes of different nations, and of mankind in general, by the individual characters of remarkable persons: illustrated from history.

All histories concur in showing us, that the fortunes of every nation depended more or less on the character of some individuals. Whether we consider the rise, the progress, or the sudden fall of a nation, or their improvement in any way, in each of these stages, the hand of some single person, acting in some way or other, is often visible. It is true, that a single person, without the assistance of subordinate hands cannot found a city or conquer a nation; but it is no less true, that a body without a head is of no use. Though Lord Napier was obliged to have recourse to inferior abilities in addition to his own, to make the table of Logarithms, it does not follow from that, that without his superintendence the same work would have been performed; but that he, without their help, could have done it if he had time, none can doubt. Hence all changes that occur in any country, the source, immediate or remote, may be traced to some individual.

There are different ways in which individuals can exercise their influence on the fortunes of nations. A conqueror can benefit man by encouraging colonization, or by facilitating communication with different nations. Hence, considering the advantages which mankind reaped by the foundation of Alexandria by Alexander the Great, as a means of communication between the different nations of the then known world, for carrying on trade, we can conceive what an immense influence the character of a single person had on the affairs of nations at large. The instance of Epaminondas shows most strikingly what effect the exertions of an individual can produce on the fortunes of a nation. The Theban power rose and fell with him. The free and republican spirited Romans who sacrificed their most illustrious citizen, Julius Cæsar, to their suspicion of his assuming absolute power, were rendered extremely slavish by Augustus. Washington was the man who obtained the independence of the American colonies. Many are the examples of this class of men : we know a Tamerlane, a Mahomet, a Shivajee, &c., men endowed with extraordinary abilities, and distinguished for being the authors of alteration (in human affairs,) as extraordinary.

A legislator has an influence on the fortunes of his fellow-creatures by his laws, which as they are good or bad, produce a corresponding effect on them. Thus we see Solon restored order and harmony to Athens, and increased the happiness of the citizens. Lycurgus made his subjects warlike and brave, but by prohibiting commerce and learning he greatly injured them.

There is another class of men, upon whom the fortunes of men greatly depend—the discoverers of countries. The discovery of America, which was the work of a single man, enriched some of the European nations, and opened to them a new field for commerce. Some men there are who from religious enthusiasm become the cause of great changes in the affairs of men, as Mahomet the Prophet. It was he, and he alone, that raised the Arabs from a state of insignificance to be a conquering and famous nation. Hence we find that, both in ancient and modern times, the fortunes of nations and of mankind in general had greatly depended on the individual characters of remarkable persons.

NOBINCHUNDER DOSS.

HISTORY.—*Answers.*

1. The thirty tyrants held their sway in Athens about the year 404, B.C. The immediate circumstance which led to this sway, was the utter defeat of the Athenian fleet under Conon in the battle of Egospotamos. At this time Athens became a province subject to Sparta, and governed by thirty tyrants named by Lysander, who was then at the head of the Spartan affairs. Of the names of the thirty, the following I recollect at this moment—Theramenes, Critias, Altyus, Dinocertus, &c. Almost all the thirty tyrants rendered their names hateful throughout Athens, by their cruelties and atrocities, but Theramenes did not partake in their crimes; he always denied his assent to their plans, a circumstance which made those wretches seek his destruction, and which they ultimately effected through the assistance of Lysander. The character of Theramenes, says a historian, deserves our admiration. He was noble in his principles, upright in his conduct, and deliberate in his councils. He was a good citizen, an affectionate husband, and at least a tolerable ruler. He had, says a celebrated historian, Rollin, the misfortune of becoming one of the tyrants. Had he remained a private man, his character would have been unstained. Critias, after the death of Theramenes, became at the head of thirty tyrants. But they were not long to continue: the noble Thrasylbus, excited by the love of his country, overthrew the tyrants by an Act usually called the Sister Act of Pelopidas.

2. Plato's idea of the origin of evil, was that God created no such thing as evil, it originates in the depravity of man's mind when it searches after spurious ways for happiness. In his dualistic system he taught that God and matter are two principles eternally opposite, differing not only by their essence, but they have no common principle to unite them. He maintained the immortality of the soul. In his dialectic system he taught that truth is only discernible by the understanding. That the knowledge of things depends more or less upon our perception. The Platonic philosophy differs from the Epicurean in this respect: Epicurus taught that God and matter are not only connected in their essence, but that every particle of matter proceeds from him.

3. The Macedonian kingdom in Syria ceased after the defeat of Antiochus by

Scipio Asiaticus about 200 years before the Christian era; it then became a Roman province.

4. The army of Alexander in their passage from the Indus to Babylon visited the Indian Ocean. The fleet in which his army sailed was commanded by Nearchus. It steered from Attock to Babylon. The sea rejoined the land force on the banks of the Tigris.

5. The most striking difference between the character as rulers of Trajan and Hadrian consisted in this, that while the former attempted to extend the limits of the empire by new conquests, the latter was of opinion that the empire should be bounded within the limits prescribed by the judicious policy of Augustus: he therefore restored the provinces lately conquered by his predecessor. It is said, that Trajan could scarcely remain three months together in the capital, whereas his successor always remained at Rome.

6. The licentious and atrocious conduct of Heliogabalus had entirely disseminated the minds of the Pretorian guards, who were then the sole disposers of the empire. He was governed by his mother, a woman of infamous character, and this circumstance put a flame to the rage of the already provoked guards, and terminated in the elevation of Maximin.

7. The beginning of the reign of Diocletian was remarkable for the victories gained by him over the Panonians, and over the barbarians who infested the northern part of the empire. While Diocletian was thus victoriously carrying his arms, he astonished the world by abdicating the throne of the world, and preferring to retire as a private man into his native country of Dalmatia. The event alluded to as similar to one of the events in the history of Charles V. of Germany, was his abdication.

9. The principal events in the reign of Henry VII. of England were the plots of Lambert Simnel, instigated by Simon, Bishop of Oxford, who counterfeited the Duke of Warwick, his failure and imprisonment; and of Perkin Warbeck, who gave out himself as Richard Duke of York, son of Edward IV., his intended war with Charles VIII. of France, and preparation for that event. The latter circumstance would have deserved no mention, had it not been for the fact that he levied taxes, (particularly that which is known in history by the name of benevolence, abolished by the statute of Richard III., a measure which rendered that tyrant popular,) under the pretence of the French war. The constant aim of Henry was to check the exorbitant power of the nobility; it was a policy wise indeed, since it saved the kingdom from the aristocratical tyranny, but his motive was selfish. His reign was the termination of the middle ages, and with him begins the constitutional history of England. It was in his time that the passage round the Cape of Good Hope was discovered by Vasco de Gama, and the discovery of America by Christopher Columbus took place. The police throughout the greater part of the reign of Henry was in a disordered state, and not much care was taken.

10. The civil wars broke out in the time of Charles I. from the circumstances of raising ship-money, of levying benevolence, and several other taxes not voted by the Parliament. This breach of the constitution was sufficient to raise a spirit of opposition, and the parliamentarians began to show symptoms of resisting the king in his proceedings. The unfortunate king, doomed to pay dearly for the faults of his predecessors, paid no regard to the remonstrances of the nation. The people at last made a petition to the king, called the petition of rights, and compelled him to sign it. But Charles violated the deed which he signed. Now the popular fury knew no bound, and thus broke out the civil war of England. The Court of Star Chamber was a court composed of judges elected by the king, to take cognizance of matters such as out of ordinary course of things. The judges continue in their office according to the pleasure of the king.

11. The principal events in the reign of Queen Anne, was the union of England and Scotland in jurisdiction. The French war, in which the Duke of Marlborough made himself conspicuous, by the glorious victories of Blenheim, Malplaquet, and Ramillies.

The succession to the throne was settled to the Elector of Hanover, the grandson of Princess Sophia, daughter of James I.

The principal statesmen of this period were Hailly, the Duke of Oxford, Bolingbroke, and several others.

The literary characters of that period were Alexander Pope, John Dryden, Joseph Addison, Savage, Butler, Gray, and several other minor wits.

12. The reign of Akbar is a glorious epoch in the history of the Moguls. He

was himself a lover of justice, and administered it among his subjects with impartiality. He made no distinction between the Mahomedans and the natives, and hence he was loved by almost all. He usually resided at Delhi. The principal characters of his court were Mahummud Khanjehn, Surfan Khan, and Amirhusen.

13. Shahjehan, the father of Aurungzebe, fell sick, when the latter was in the Deccan. He hastened to the capital, and here threw his father into prison by intrigues, which put an indelible stain on his memory, and thus ascended to the throne of Delhi. He had his three brothers competitors in the beginning, whom he overcame by means equally unjust and disgraceful.

Aurungzebe afterwards had an extraordinary rival in the person of a woman, who, by her bounties to the Faqueers, collected a large number of them, who declared her empress. In the beginning Aurungzebe took no notice of the matter, but when the rabble about her had been rendered invulnerable, it was given out, by her enchantment, her followers began to increase, and Aurungzebe then became sensible of the danger which threatened him. But happily Aurungzebe had an equal degree of fame for sanctity; he wrote some illegible characters on a slip of paper, and put it on the head of a spear; the imperial troops being thus encouraged, soon gained a victory over the rabble, and they were dispersed.

The character of Aurungzebe was a mixture of many vices, with a few counterbalancing virtues. He was extremely selfish, and unscrupulous of committing any means which would serve his purpose. He was superstitious to the highest degree. But as a ruler Aurungzebe must be confessed an able sovereign. Sevajee was the son of Dadajee, a Maharatta chief. He came in collision with Aurungzebe in the Deccan in his conquest; and on one occasion taken prisoner to Delhi, he escaped from his prison by an artifice, and continued for several years an enemy to Aurungzebe.

14. The battle of Gheria was fought between Sarfraz Khan and Aliverdy Khan; Aliverdy was successful, and he became the Soobadar of Bengal.

SAMKRISTO PAULIT.

Now it will be recollected that all these answers were written from memory, and without any assistance; and the scholars, therefore, proved themselves indeed worthy of their scholarships.

The mistakes of the scholars are preserved in the above replies.

Scholarship Examination Questions, 1843-4.

LITERATURE.—Senior.

He thought, also, there was found in the mind of man an affection naturally bred and fortified, and furthered by discourse and doctrine, which did pervert the true proceeding towards active and operative knowledge.

This was a false estimation, that it should be as a diminution to the mind of man to be much conversant in experiences and particulars, subject to sense, and bound in matter, and which are laborious to search, ignoble to meditate, harsh to deliver, illiberal to practise, infinite as is supposed in number, and no ways accommodated to the glory of arts.

This opinion or state of mind received much credit and strength by the school of Plato, who thinking that particulars rather revived the notions or excited the faculties of the mind, than merely informed; and having mingled his philosophy with superstition, which never favoureth the sense, extolleth too much the understanding of man in the inward light thereof; and again Aristotle's school, which giveth the due to the sense in assertion, denieth it in practice much more than that of Plato.

For we see the schoolmen, Aristotle's successors, which were utterly ignorant of history, rested only upon agitation of wit; whereas Plato giveth good example of inquiry by induction and view of particulars; though in such a wandering manner as if of no force or fruit. So that he saw well that the supposition of the sufficiency of man's mind hath lost the means thereof.

1. What is meant by, "That it should be as a diminution to the mind of man, &c."?

2. State in your own words the doctrine of Plato which is here alluded to.

3. What does the author mean by saying, "That superstition never favoureth the sense?"

4. State in your own words what (according to the author) is "the difference between the school of Plato and Aristotle in assertion, and what is the difference in practice."

5. In what sense are the schoolmen here said to have been "utterly ignorant of history?"

6. What is meant by their resting only upon agitation of wit?

7. What is the meaning of the last sentence?

8. What is the scope of the whole passage?

Macbeth.—Two truths are told
As happy prologues to the swelling act
Of the imperial theme—
This supernatural soliciting
Cannot be ill; cannot be good.—If ill,
Why hath it given me earnest of success,
Commencing in a truth? I am Thane of Cawdor;
If good, why do I yield to that suggestion,
Whose horrid image doth unfix my hair,
And make my seated heart knock at my ribs,
Against the use of nature? Present fears
Are less than horrible imaginings:
My thought, whose murder yet is but fantastical,
Shakes so my single state of man, that function
Is smother'd in surmise; and nothing is
But what is not.

1. "Two truths are told as happy prologues to the swelling act of the imperial theme."

What were the two truths, and what was the imperial theme?

2. "I am Thane of Cawdor."

What does Macbeth intend to prove by this assertion?

3. Explain "whose murder yet is but fantastical."

4. Explain "that function is smother'd in surmise."

5. Explain "and nothing is but what is not."

But sometimes virtue starves while vice is fed:
What then? Is the reward of virtue bread?
That vice may merit, 'tis the price of toil;
The knave deserves it when he tills the soil;
The knave deserves it when he tempts the main,
Where folly fights for kings, or dives for gain.
The good man may be weak, be indolent:
Nor is his claim to plenty, but content;
But grant him riches, your demand is o'er?
No—shall the good want health, the good want power?
Add health and power, and every earthly thing,
Why bounded power? why private? why no king?
Nay, why external for internal given?
Why is not man a god, and earth a heaven?
Who ask and reason thus will scarce conceive
God gives enough while he has more to give;
Immense the power, immense were the demand:
Say, at what part of nature will they stand?
What nothing earthly gives, or can destroy,
The soul's calm sunshine and the heartfelt joy,
Is virtue's prize.

Write a paraphrase of this passage from Pope, in prose, substituting for every interrogation a corresponding affirmation, and for every pronoun the noun which it represents.

[To be continued.]

Historical and Statistical Account of the present System of Supplying the Metropolis with Water. By JOSEPH FLETCHER, Esq., Barrister-at-Law, Honorary Secretary.

[*Read before the Statistical Society of London, February 17th, 1845.*]

THE following pages contain the results of an endeavour, with limited time and opportunities, to supply a statement to accompany the account of the present System of Sewerage in the Metropolis, read before this Society on the 18th of March last. "Anciently, until the time of the Conqueror, and 200 years after, this city of London was watered (besides the famous river of Thames on the south part) with the River of the Wells, as it was then called, on the west; with a water called Wall Brook, running through the midst of the city into the river of Thames, severing the heart thereof; and with a fourth water or boorn, which ran within the city through Langboorn Ward, watering that part in the east. In the west suburbs was also another great water called Oldborn, which had its fall into the River of Wells. Then were there three principal fountains or wells in the other suburbs; to wit, Holy Well, Clement's Well, and Clark's Well. Near unto this last-named fountain were divers other wells, viz., Skinner's Well, Fag's Well, Tode Well, Loder's Well, and Rad Well; all which having the fall of their overflowing into the aforesaid river, much increased the stream, and in that place gave it the name of Wells. In West Smithfield there was a pool, in records called Horse Poole, and one other near unto the parish church of St. Giles without Cripplegate; besides all which they had in every street and lane of the city, divers wells and fresh springs; and after this manner was this city then served with sweet and fresh water; which, being since decayed, other means have been sought to supply the want, as shall be showed."*

"The bourns aforesamed, and other the fresh waters that were in and about this city, being in process of time, by encroachment for buildings, and otherwise heightening of grounds, utterly decayed, and the number of citizens mightily increased, they were forced to seek sweet waters abroad; whereof some, at the request of King Henry III., in the 21st year of his reign, were (for the profit of the city, and good of the whole realm thither repairing, to wit, for the poor to drink and the rich to dress their meat) granted to the citizens and their successors by one Gilbert Sanford, with liberty to convey water from the town of Tyburn by pipes of lead into the city. And the first cistern of lead, castellated with stone, in the city of London, was the Great Conduit, in West Cheap, which was began to be builded in the year 1285;" and was supplied with water from these newly acquired sources.†

For a century and a half the conduits erected in different parts of the city appear also to have been supplied from them; but in 1438, the corporation brought water from Highbury to a conduit opposite Cripplegate Church. In the following year, the supply to the cisterns at Tyburn was augmented by the waters of some springs at Paddington, obtained from the Abbot of Westminster; and this continued to be the only great source of supply, until the middle of the sixteenth century, although the water of various springs in the neighbouring fields were brought to particular buildings or localities in the city; the conduits at Holborn

* Strype's Stow, pp. 22, 23.

† Ibid. p. 24.

Cross and on Snow Hill, deriving their water from the springs collected into Lamb's Conduit, near the present Red Lion-street; that at Aldgate, from springs at Hackney; one in Lothbury, from springs between Hoxton and Islington; the Charter House, from White Conduit Fields; and Christ's Hospital, from the Devil's Conduit, north-east of the present Brunswick-square.

Notwithstanding the readier access to the well waters, obtained by the multiplication of pumps, and the still continued use of the Thames water carried up into the city, the corporation found it necessary to go yet further afield in search of additional springs; and in 1543, an Act was passed to enable them to bring water from Hampstead Heath, St. Mary-le-Bone, Hackney, and Muswell Hill, upon their compensating the owners of land for damage done by digging or otherwise. It was not until 1568 that Thames water was raised by machinery for the supply of any part of the town; but in that year a gin, probably a horse-wheel, was constructed to supply a conduit near the top of Dowgate Hill.

"The conduits used, in former times, to be visited, as they were in a more remarkable manner on the 18th of September, 1562. The lord mayor (Harper), aldermen, and many worshipful persons, and divers of the masters and wardens of the twelve companies, rid to the Conduit Heads, for to see them, after the old custom; and afore dinner they hunted the hare, and killed her, and thence to dinner at the head of the conduit. There was a good number entertained with good cheer by the chamberlain; and after dinner they went to hunting the fox: there was a great cry for a mile, and at length the hounds killed him at the end of St. Giles's. Great hallowing at his death, and blowing of hornes; and thence the lord mayor, with all his company, rode through London to his place in Lunibard-street."*

Thus the corporation of London, down to the reign of Elizabeth, regarded it as one of their principal duties to supply the town with water, and see to the erection and preservation of conduits, to which the poor could freely resort. Down to this period, it must likewise be borne in mind that the city and its immediate suburbs formed the whole Metropolis. The best description which I can find of the transition from this system of public supplies to that acting by private companies, is contained in a paper by a member of this Society, Mr. Thomas Wicksteed, engineer to several of the Water Companies, read before the Society of Arts on the 24th of May, 1835.

"Although bringing water by means of pipes from distant sources was a great improvement, so far as respected an increased quantity; nevertheless, the inconvenience and expense of carrying it from the conduits to each house still existed, and it was not until the erection of the London Bridge Water-works, in 1582, that this difficulty was overcome, when the principle of conveying water into dwelling-houses by means of small lead pipes was adopted; this, the greatest improvement in the mode of supplying water, by substituting the power of machinery for human drudgery, has not been surpassed, and is the plan now used, two centuries and a half after its first introduction—improvements have been made in the practice of it,—the principle remains unaltered.

"In 1581 or 1582, Peter Maurice, a Dutchman, obtained a lease from the city of the first arch of London Bridge, on the north side, and

* Stryce's Stow, p. 25.

erected a water-wheel, to be worked by the tide, and a set of force pumps to raise Thames water for the supply of the neighbourhood. The water was raised to the top of a wooden building 120 feet high, and passed from thence through pipes to supply the dwelling-houses in Thames-street, New Fish-street Hill, and Gracechurch-street, as far as a standard on Cornhill, which was erected in the middle of the street where the four ways meet. The water which was to spare, after supplying the before-named streets, flowed from the standard through four pipes branching to Bishopsgate, Aldgate, the Bridge, and Wallbrook, which supplied the dwelling-houses in the neighbourhood, and cleansed the gutters in these streets. The site of the standard was supposed to be the highest ground in the city. The quantity of water raised was equal to about 3,170,000 imperial barrels per annum, or an average quantity of 216 gallons per minute, or about $\frac{1}{4}$ ths per cent. of the quantity raised by the water-works for the supply of the metropolis at present (in 1834). There were 16 pumps worked by this wheel, each of 7 inches diameter, and 30 inches stroke. Mr. Smeaton ascertained from registers that the pumps made 3,025 strokes per tide; and as there are 708 tides per annum (allowing one-fifth for loss through the valves, according to Dr. Desagulier's statements), the quantity raised may be calculated. Improvements, however, had been made before the above particulars of the pumps were published, and therefore the quantity given will be the extreme probable quantity raised in 1582. In 1583 or 1584 machinery was fixed in the second arch.

"In 1594, for the better supply of the city, Bevis Bulmar erected a large horse-engine and four pumps at Broken Wharf, to raise Thames water for the inhabitants of Cheapside, St. Paul's Churchyard, Fleet-street, &c., which, Maitland says, was removed previous to the date of his work, 1756, on account of other companies being able to supply water at a cheaper rate. This appears to have been the latest employment of animal power for the purpose.

"The New River, the greatest and most splendid work that was ever undertaken for the supply of a modern city with water, was commenced in James the First's reign. In 1605, the 3rd of James the First, the supply of water was found to be inadequate to the wants of an increased population; and as at that time the discovery of the steam-engine had not been made, it was necessary to seek abroad for more powerful springs of water than had hitherto been discovered, and at a sufficient elevation to allow the water to run to London; these were met with in the neighbourhood of Hertford, above twenty miles north of London, and the citizens conceived the vast plan of bringing these springs by means of a channel to Islington, and for that purpose obtained an Act of Parliament, empowering them to bring a stream of water from the springs of Chadwell and Amwell in the county of Hertford, between the towns of Hertford and Ware. By this Act, 3rd of James the First, they were empowered to make a 'trench, channel, cut, or river;' the width of the ground to be purchased being limited to 10 feet; and as these springs were situated in the valley of the river Lee, and, consequently, ran into the said river, they were bound to compensate, not only the owners of property through whose lands the new river was to be carried, but also 'all such persons as shall sustain any damage, loss, or hindrance, in their mills standing upon any of the rivers or streams from

which the water shall be taken through the said new cut, or river.' That this was a proviso of great consequence may be supposed, when at the present day it is stated that one of the springs yields a quantity of water equal to about 3,770 imperial gallons per minute, or 54 millions of barrels per annum.

"Surveyors were employed by the city to plan the execution of the work; but it was discovered that, as the Act limited the width of the property to be purchased to 10 feet, it would be impossible to convey the waters across the hills and valleys to London: the city therefore applied to Parliament again the following year for power to make tunnels, where necessary, either to be laid in the earth or formed upon arches, and an Act was passed accordingly in the 4th of James the First. Even with these additional powers the proposed course of the river was extremely circuitous; and the work was not completed until some years after.

"In 1608, Sir Hugh Myddleton, citizen and goldsmith, offered at his own charge to carry the Acts of James into execution; and to this great and enterprising man were the inhabitants of the Metropolis indebted for one of the greatest blessings that could be conferred upon any city. In 1610, the citizens, by an Act of Common Council, made over their powers to Sir Hugh Myddleton; and in 1612 this Act was confirmed by an indenture. The work, however, appears to have been commenced in 1608, and was completed in 1613.

"It was opened and the water admitted into the basins at the New River Head at Michaelmas, 1613, with great pomp, on the day that Sir Thomas Myddleton, brother to Hugh, was elected Lord Mayor. In 1619 a charter of incorporation was granted by James I. to Sir Hugh Myddleton, citizen and goldsmith, in conjunction with other wealthy citizens, and they were styled 'the Governor and Company of the New River brought from Chadwell and Amwell to London.'" It empowered them to improve the river, to prevent nuisances being committed therein, *under penalty of the king's displeasure*, subject to the laws for the contemnors of the king's authority; and, *under the same penalty*, all other parties were prohibited bringing water for the supply of the Cities of London and Westminster, and the Borough of Southwark, without a licence from the Governor and Company of the New River.

"The king subscribed towards the undertaking, and was thereby entitled to a moiety of the profits. The work was said to have cost 500,000*l.*: the capital was divided into 72 shares, of which the king had 36; but so poorly did the scheme answer at first, from ignorance of the great advantages that the Metropolis would derive from this splendid work, that Sir Hugh Myddleton, who had spent the whole of his fortune, was ruined, and the proprietors did not for 30 years divide more than 5*l.* per share, or about 1*s.* 6*d.* per cent. The king, who was entitled to a moiety, also alienated his share, reserving only 500*l.* per annum out of it. Although the king's share is now in private hands, the holders of it take no part in conducting the affairs of the Company.

"It should here be added that previous to the year 1738, the supply from the springs was found to be insufficient, and arrangements were made with the trustees of the river Lee, to enable the New River Com-

pany to divert water from the said river. This was done, first by pipes, and afterwards by a cut and trough into the New River, the dimensions of which were determined by Act of Parliament, passed in 1738, in the 12th year of the reign of George the Second."

A property is still retained by the Corporation in some of the old sources of supply to the city, and others were made over to meet the interest upon its debt to the Orphans' Fund. The city aqueducts are at Paddington, Hampstead, and Marylebone. The Paddington spring has been sold to the Bishop of London, but the stock in which the purchase money was invested has been carried to the Orphans' Fund account. The other springs are leased for 21 years; the produce of the whole being 312*l.* 12*s.* 2*d.* per annum.* The Hampstead springs still supply some northern suburbs, under the management of a company which has its office at 43, Frederick-place, Hampstead-road: they are the most ancient of the existing works.

In this farming out of their functions by the Corporation of London to enterprising individuals, we see the commencement of the existing system of works for the supply of water. Such leases of power were not in those days restricted to public works, but extended even to the administration of justice. Derelictions of duty in this latter form do not now, however, disgrace the city. But the system of abandoning that part of the public works of the Metropolis which we have now under consideration to the close calculations of private enterprise, with all its prudential dispositions and interests antagonist to the consumer, virtually unchecked by any public authority, has not only continued to the present day, but grown with the growth of the Metropolis, under the sanction of Parliament, out of the city, as under that of the Common Council within its walls. It took some time, however, to eradicate from the city conscience the principle that the municipality was responsible for the proper supply of the inhabitants. In 1654, the Court of Common Council passed an Act for levying on the inhabitants of the city two-fifteenths for sundry repairs of conduits, and for the employment of the poor in bringing water into the city; each fifteenth to be equal to 500*l.*, and to be raised from the different wards in the proportions assigned. In 1681, four-fifteenths were raised for the like purposes.

The old works at London Bridge, too, were still in active rivalry with the New River; and in 1701, having been purchased from the family of the original lessee under the Corporation for 35,000*l.* by one Richard Soams, citizen and goldsmith, he procured, to secure his property in the whole, a lease of the fourth arch for 381 years; the third arch being in possession of a wharfinger. Soams formed a company by 300 shares of 500*l.* each; and to this company, in 1761, a further lease was granted of the third arch for 321 years; and, in 1767, another of the fifth arch from the north end, and the second arch from the south end (the latter to be used for the supply of the borough), for 315 years,—so that all the leases would expire simultaneously in the year 2082, being 500 years from the time when the original grant was made for that term. But this contemplated length of days was cut short in 1822 by the statute of the 3rd of Geo. IV., c. cix., local and personal, which provided for the entire removal of the London Bridge water works, with a view to the improvement of the old bridge, or the erection of a new one,

* Report of the Corporation Commissioners, p. 216.

and transferred the service of their district to the New River Company. It was, however, made a condition by the latter, in accepting it, that they should have a steam-engine to pump from the Thames in case of failure in the supply by the New River through frost or drought; and a 100-horse engine was accordingly erected at Broken Wharf. At the time of this suppression of the London Bridge works, as a nuisance to the navigation, the number of water-renters was 10,417, and the quantity of water raised annually 39,484,000 barrels, or 2,704 gallons per minute, being twelve times greater than that first raised in 1582 by Peter Maurice.

The existence of large districts of the Metropolis without the city and borough, dates only from the period of this first employment of inanimate power; and companies, with powers to take up the public streets, &c., have been successively sanctioned by the Legislature, as the wants of such districts offered promise of profit to the speculator in their supply. One of the oldest establishments was the "Merchant Water-works," to which belonged three engines for raising water; one a windmill in Tottenham Court fields, and two over-shot water-wheels, worked by the water of a common sewer in St. Martin's and Hartshorn lanes, in the Strand. From these works there were three mains of 6 and 7 inch bores to supply the respective neighbourhoods.

The Shadwell works, erected about 1660, had first a horse-wheel, and afterwards two atmospheric engines, which supplied the neighbourhood with Thames water through two mains of 6 or 7 inch bores. In 1691 these works, which had previously belonged to the family of Thomas Neale, Esq., were vested in a Company of Proprietors, who were incorporated by an Act of Parliament 3rd and 4th of William and Mary. Two engines of Bolton and Watt's manufacture were afterwards erected; the first being one of the earliest engines made by them. When the London Docks were made, the district of their supply was much reduced, and the works were purchased by the Dock Company. Afterwards an Act was obtained, in 1808, by the East London Water-works Company, to enable them to purchase these works, which were eventually given up, the supply from the Company's new works being superior.

The York Buildings Water-works, in Villiers-street, Strand, were established in 1691. The Thames water was raised for the supply of the neighbourhood, first, by a horse-wheel—previous to the year 1710 they had one of Savery's engines, and a few years afterwards one of Newcomen's. Maitland says, in his work published 1756, that "the directors of this Company, by purchasing estates in England and Scotland, erecting new works, and other pernicious projects, have almost ruined the company. However, their chargeable engine for raising water by fire being laid aside, they continue to work that of horses, which may, in time, restore the company's affairs." This was true for a time, as it appears that, from 1789 to 1804, this Company paid good dividends; but in consequence of the ruinous competition which arose at the latter period, and continued for some years, an engine was erected of 70 horses' power, iron-pipes were laid down instead of wooden ones; no more dividends were paid, excepting 1*l.* per share for two years, out of the *capital*; and, in 1818, the company was ruined, the establishment broken up, and the district supplied by the New River.

The Chelsea Water-works were established in 1722, by an Act of

Parliament in the 8th of George I., for better supplying the city and liberties of Westminster, and parts adjacent, with water. The Thames water was raised from settling ponds, in the first instance by a water-wheel, which was worked by the water collected in large ponds as the tide rose, and kept in until the water in the river lowered, when it was let out and worked the wheel—afterwards, two of Newcomen's engines were erected, and, in 1782, one of Bolton and Watt's engines, being one of the earliest erected in London.

The West Ham Water-works were set on foot in 1743, and a Company was established by Act of Parliament, the 21st of George II., in 1747. The water was raised out of one of the branches of the river Lee, by a fire-engine of about 6 horses' power. These works were afterwards purchased by the East London Water-works Company, at the same time that they purchased the Shadwell works, and the force now used is a water-wheel of about 16 horses' power.

Previous to the year 1756 there was a horse-machine for raising Thames water through a 7-inch pipe in Southwark, called the Bank End Water-works. A company was formed in 1758, under the name of the Old Borough Water-works Company, which, together with the London Bridge works, supplied Southwark. A steam-engine was erected afterwards; and in 1823, upon the removal of the London Bridge water-wheels, the two works were consolidated under the name of the Southwark Works, and became the property of John Edwards, Esq.

Previous to 1756 works were established at Rotherhithe. The water was raised by a water-wheel, which was worked by tide-water collected in the ditches and ponds in the neighbourhood, and kept until the falling of the tide, when it was let out again into the river, and, in its course, turned the water-wheel. It supplied the neighbourhood plentifully through two 6-inch mains.

Previous to the year 1767 works were established at Lea Bridge upon the river Lea, worked by a water-wheel, for the supply of Hackney and Clapton. They were called the Hackney Water-works, and, in 1829, they became the property of the East London Water-works Company.

In 1785 the Lambeth Water-works were established by Act of Parliament, 25th George III., to supply the district upon the south side of the Thames, exclusive of the parishes of St. George and St. Saviour, Southwark; and in 1805 the South London Water-works were established by Act of Parliament, 45th George III., to supply the district on the south side of the Thames not already supplied by the Lambeth and Southwark works.

Down to this period the gradual progress of the supplies had given occasion for no great struggle; but the introduction of several new companies with large capitals early in the present century put to the severest test the principle of competition in the discharge of the great municipal duty of supplying the Metropolis with water; and after the streets had been torn up in the contest so as to become nearly impassable, and vast sums had been utterly wasted in competing lines of pipes in the same districts and streets, this principle was proved to be utterly inapplicable to the circumstances; and at length it was discovered that, without municipal powers of regulation, there was no medium between an unlimited sacrifice of capital on the part of the competing companies, or their combination to partition the town into monopoly districts, out of

which they could indemnify themselves for past losses, and obtain a future ample revenue, by charging their own rates for supply. The struggle among the companies at this period is very vigorously described in the Report of the Commons' Committee on the Supply of Water to the Metropolis, in 1821.

The London Bridge, the New River, and the Chelsea Water-works, with three smaller establishments, no longer in existence, states that Report, "had the whole supply of the Metropolis north of the Thames, previously to the year 1810. None of them had any legal privilege in the nature of a monopoly, but each possessed a monopoly in effect, through the greater part of the district which it supplied. Where their works intermixed, as they often did, it was the effect of a very gradual extension; and though the inhabitants of those parts of the town had the benefit of a choice, no mischievous spirit of rivalry seems to have been excited between the companies.

"The East London, West Middlesex, and Grand Junction Companies, were formed under the several Acts of Parliament, noted in the margin; they began to supply the town about the year 1811.* The principle of the Acts under which these companies were instituted, was to encourage competition; and certainly in this, as in other cases, it is only from competition, or the expectation of competition, that a perfect security can be had for good supply; but your Committee are satisfied that from the peculiar nature of these undertakings, the principle of competition requires to be guarded by particular checks and limits in its application to them, in order to render it effectual without the risk of destruction to the competing parties, and thereby ultimately of a serious injury to the public.

"Competition, in ordinary cases, adjusts the supply to the demand through the liberty which the sellers have to go out of the market as well as to come into it; but in trades carried on by means of large capitals, vested in fixed machinery, and furnishing a commodity of no value but for consumption on the spot, the sellers are confined to the market by the nature of the trade; and if the new comer has to seek immediate employment for large works, by taking custom from the established dealer, as there can be no great difference in the quality of what they sell, they must vie in lowness of price, and will probably be driven to underbid each other down to the point of ruin, because it is better to take anything than to take nothing for that which cannot be carried away; and this must go on until both are worn out, or one has outlasted the others, and succeeded to a real and effective monopoly, or until by some arrangement between themselves, they can put a stop to their mutual destruction.

"These consequences appear to have followed from the late protracted competition between the water companies; it was carried on during several years at a very ruinous loss, and must, in all probability, have led to the extinction of all except one or two of the wealthiest, as it actually did to that of the smaller companies, but for an arrangement which finally took place, and by which the supply of the town was partitioned between them, each company withdrawing its services within a line agreed upon, and exchanging with the other the pipes beyond its own boundary.

* East London, 47 Geo. III.; West Middlesex, 46 Geo. III., 50 Geo. III., 53 Geo. III.; Grand Junction, 51 Geo. III., 56 Geo. III.

“This arrangement was effected between the New River and East London Companies, about the end of 1815 ; and between the New River, Chelsea, West Middlesex, and Grand Junction, at the end of 1817. In the former case a deed was entered into by the two companies, binding them by penalties to abstain from serving beyond the line drawn between them. In the latter, the four companies entered into no engagement to that effect, but left it to the prudence of each whether they would at any future time embark at the expense of fresh capital in a renewal of the contest. This difference of proceeding appears to have been occasioned by the wording of the West Middlesex and Grand Junction Acts, which rendered it doubtful whether those companies could bind themselves by engagement with any others to abstain from serving within certain limits.

“These measures, so questionable at the first view, and carrying with them so much appearance of a combination against the public, do nevertheless appear to your Committee to have been measures of self-preservation, leaving the companies only responsible for the use which they might thereafter make of them ; they were, however, in themselves of a nature to excite, and did excite, a great degree of alarm and discontent ; it was obvious that they placed the companies and the public in a relation, the reverse of that in which Parliament had designed to place them, and that, in rescuing themselves from ruin, they had, in point of fact, (however unavoidably) acquired a power which they might abuse to any extent. Some vexatious proceedings on the part of the West Middlesex and Grand Junction Companies, in matters of no great moment in themselves, but calculated to show what might be the consequences of a power without appeal, appear to have added to the irritation of the inhabitants of the districts served by them, and it was in this disposition of the public that the East London, West Middlesex, Grand Junction, and Chelsea Companies gave a notice, which they have since acted upon, that an increase of water rents would shortly take place, the amount of which was, generally speaking, about 25 per cent. above the old rates for the ordinary service. The two latter companies also gave notice, that they should make an additional charge for high or extra service, which does not appear to have been their practice in all cases before the partition. The New River Company, about two years after effecting their undertaking with the East London, raised their rents, which had been depressed during the contest with that company, to the old rate, but they have taken no measure of that sort subsequently to the partition of the western parts of the town. An expectation having since been constantly entertained, that the question would in some shape come before Parliament, it has been stated to your Committee, that they preferred waiting the decision of Parliament on the subject ; taking it for granted that no prejudice would thereby arise to their claims.

“However capable it might be of precise proof that the increase thus demanded was reasonable (a point which your Committee have not felt themselves qualified to decide with the object of permanently sanctioning that specific increase), yet it is no wonder that, under the circumstances above stated, the demand was ill received, and its reasonableness very strongly disputed, more especially after the rash and unqualified pledges of the West Middlesex and Grand Junction Companies, circulated during the competition, that they could and would supply their respective dis-

tricts at the rates of 1810, or even at lower rates, including the advantages of high services, and of a more abundant and certain supply for ordinary service.

“Your Committee feel it their duty to state, that the old companies (the New River and Chelsea), are not involved in this charge of culpable precipitancy, if not of intentional delusion.”

“Your Committee are clearly of opinion, that in availing themselves of their present situation to increase their rents, the companies owe to the public a complete exposition of the grounds on which they proceed; and that if those grounds are just, such an exposition cannot but be advantageous to themselves.

“But more than all, your Committee are desirous, that, for the sake of a final good understanding between the public, and bodies of men whose property is most usefully employed in its service, the question of the quantum of charge should be disengaged from other questions with which it is at present mixed, and which tend to produce dispositions unfavourable to a candid and liberal consideration of it.

“The public is at present without any protection, even against a further indefinite extension of charge. In cases of dispute, there is no tribunal but the boards of the companies themselves to which individuals can appeal: there are no regulations but such as the companies may have voluntarily imposed upon themselves, and may therefore at any time revoke, for the continuance of the supply in its present state, or for defining the cases in which it may be withdrawn from the householder. All these points, and others of the same nature, indispensably require legislative regulation, where the subject-matter is an article of the first necessity, and the supply has, from peculiar circumstances, got into such a course, that it is not under the operation of those principles which govern supply and demand in other cases; and your Committee are of opinion, that as it cannot be precisely foreseen how the rules which they are prepared to suggest for these purposes may work, it would be expedient that they should be enacted, in the first instance, only for a short period.”

“Your Committee therefore take the liberty to recommend that a Bill should be introduced and limited to four years, restraining the companies from advancing the rates beyond the proportion of 25 per cent. on the old rates, for what is termed the ordinary service of water for domestic purposes; leaving high and extra services as matters of agreement between the parties, but defining the one and the other, and establishing, as far as may be found practicable, fixed rules for the rates of charge on trades consuming large quantities of water.”

This proposal to get out of the difficulty by establishing a minimum price, which was never carried into effect, is simply a clear recognition of the false position in which the public has been placed by the universal surrender of the supply of water into private hands, of which the corporation of London set the example. Suggestions were also hazarded for the appointment of umpires, to settle cases of disputed fairness of rating; but there is still no appeal from the decision of the several companies. In fact, the water companies are in the full enjoyment of the wide margin of profit between that bare remuneration for their outlay, which would have been taken by a municipal body, and that excessive exaction in proportion to the supply, which alone will ever provoke the whole public to an appeal to Parliament against the existing system,

which neither interest nor responsibility calls upon its administrators to improve to the extent, which, with such enormous revenues, an efficient public trust would soon find practicable. "The only remark which we shall venture to make on this subject," state the Commissioners who investigated the quality of the water supplied by the several companies in 1818, "is one naturally suggested by the evidence which has come before us in the course of our inquiries, viz., that if, on the one hand, the preservation of the present water companies, from which the public have undoubtedly derived immense benefits, would be endangered by unlimited competition with new companies that might be established with similar objects, it must, on the other hand, be evident, when due regard is had to the consideration that the constant and abundant supply of pure water is an object of vital and paramount importance to the inhabitants of this vast metropolis, that the dispensing of such a necessary of life ought not to be altogether left to the unlimited discretion of companies possessing an exclusive monopoly of that commodity; and that the interests of the public require that while they continue to enjoy that monopoly, their proceedings should be subjected to some effective superintendence and control."* And at this very period (in 1828), the companies on the north side of the Thames had advanced their yearly revenue 44,000*l.* beyond what the Committee of 1821 had found them taking and had considered to afford them an ample profit.†

The Commissioners, whose words we have here quoted, were appointed in consequence of addresses to the Crown from both Houses of Parliament, on account of the alarm which had sprung up in 1837, in regard to the quality of the water supplied to the Metropolis; occasioning the presentation of various petitions to Parliament. The Commission was directed to Dr. P. M. Roget, Mr. W. T. Brande, and Mr. Thomas Telford; and in a brief and dispassionate report, they described the real defects in the existing supplies, divested of all exaggeration. Their report at once calmed the excitement which prevailed, and compelled the water companies to engage in extensive plans of improvement, in regard to settling reservoirs and filtration. In 1831, however, another Commission was addressed to Mr. Telford, requiring him to report upon the means of supplying the Metropolis with pure water. In February, 1834, this gentleman presented his report, recommending the construction of covered aqueducts, to convey the water of the Verulam above Watford to Primrose-hill, to be distributed by the service pipes of the three companies supplying the western parts of the Metropolis, on the north side of the Thames; and those of the Wandle at Beddington, to Clapham-common, to be distributed in like manner by the service pipes of the three companies on the south side of the river; at the same time pointing out advisable amendments in the supplies obtained by the New River and East London Companies. This report, notwithstanding that it was followed up by the labours of a Committee of the House of Commons in the same year, did not lead to the adoption of any practical measures; the alarm on the subject of the Thames water, which had previously agitated the public, having greatly subsided, while the rude estimate for the proposed works was no less than 1,177,840*l.* It was

* Report of Dr. Royd, Professor Brande, and Mr. Telford; Sess. 1828, No. 267, p. 12.

† Commons' Committee's Report, Sess. 1828, No. 567, p. 5.

even urged against these plans, that the proposed covered culverts would gradually become obstructed with a vegetable growth, the increase and corruption of which would deteriorate the water, and cause interruptions in its supply for the purpose of cleansing the channel, unless the enormous expense of a double culvert were incurred. Supported by this view, and by a number of curious observations made with great accuracy upon the springs which supply the deep wells sunk, completely through the London clay, to the gravels and chalks beneath it, an endeavour was made, in 1834-5, to form a "Metropolis Pure Soft Spring Water Company," to supply the existing companies with their requisite quantities by Artesian wells of great magnitude, which appears to have failed, rather through defects in the provisional committee, than through any demonstrated impracticability in their views, which had been entertained ten years previously, and formed the subject of an unsuccessful company in 1825. At present, however, there is abundant evidence against a reliance upon the quantity derivable from the deep wells. Some portions of Mr. Telford's plan for supplying the northern parts of the Metropolis, combined with this for obtaining supplies from the deep springs, were submitted to the Legislature in a Committee of the House of Lords in 1840, but received no public sanction. On this occasion, the water companies generally refused to supply the statistics required by the Lords' Committee; and the description of themselves, given by the several companies to the Commons' Committee of 1834, will therefore give the best idea of the present means and methods of supplying London with water.

The principal Acts of Parliament relating to the *New River Company* (whose offices are at the New River Head, near Sadler's Wells), since the date of its charter, in the 17th of James I., are, one of the 12th of George II., having for its general object the improvement of the navigation of the river Lea, but which recites, *inter alia*, that the New River Company had for many years then past received a considerable supply of water from the river Lea, and that disputes had arisen between the corporation of Hertford, the inhabitants of Ware, and the New River Company, in relation to which it contains several provisions for ascertaining and rendering constant the supply from the river Lea; and another of the 3d of George IV., which settles the terms of agreement between the Corporation, the London Bridge Water-works Company, and the New River Company, for the transfer to the latter of the interest and implements of the Bridge Company, and their permission to pump water out of the Thames by an engine at Broken Wharf, Thames-street, the use of which is, however, confined to cases of extreme drought and temporary obstruction by frost, cutting off the ordinary supplies by the New River.

About two-thirds of the waters of the New River are supplied by the spring at Chadwell, and one-third by a neighbouring inlet from a branch of the river Lea; and to convey the whole to London, a distance of about 21 miles, there is an artificial channel nearly 40 miles in length, winding at the foot of the hills which border the valley of the Lea on the west. This delivers the united waters into four reservoirs, called the New River Head, at Clerkenwell, 84 feet above the level of the Thames; proper means being adopted to prevent the ingress of fish and weeds; and such arrangements being made in the mains as to prevent

interruption to the supply in case of repairs. The greater part of the service is delivered from this Head without pumping; but there are two engines at the Head which could raise for a high supply 8,820,000 gallons per day, and which, in 1833, raised on an average 2,100,932 imperial gallons per diem into Claremont-square and the reservoir in the Hampstead-road, to a height of 60 feet above the Head, making a total height of 144 feet above the level of the Thames. The company are not able to state the capital originally invested in the aqueduct and lands purchased for the use of the works; all documents relating to the greater portion having been lost by lapse of time, or destroyed by a fire in 1769; but the works were valued, in 1828, at 600,000*l.*: in addition to which 438,725*l.* had been expended in steam-engines, water-wheels, pipes, and other machinery; and down to the close of 1833, 78,239*l.* more was thus expended: making a total supposed expenditure of 1,116,964*l.*, or 15,512*l.* on each of the 72 shares into which this vast property is divided; a sum, however, entirely suppositious, chiefly extracted from the water-rents themselves, and, in all probability, vastly exceeding any actual outlay from capital paid up by the shareholders at any period of the company's existence; the estimated expenditure of 500,000*l.* already mentioned being apparently without authority.

The water-rents for houses and buildings amounted in 1833 to 96,245*l.* 10*s.*; for watering streets, to 2,062*l.* 12*s.* 4*d.*; making a total of 98,308*l.* 2*s.* 4*d.*; while the rents received for lands and houses amounted to 6,601*l.* 4*s.*, raising the total income to 104,909*l.* 6*s.* 4*d.* The expenditure in the same year amounted to 61,163*l.* 1*s.* 3*d.*, leaving a net profit of 43,746*l.* 4*s.* 11*d.*; but the ordinary annual expenditure was estimated only at 38,000*l.*, which would leave for this year a net profit of 66,909*l.* 6*s.* 4*d.* The house water rental was derived from the supply of 70,145 houses and buildings, of which 3,067 paid 50 per cent. extra for high service; the general average being 26*s.* 6*d.* per house or building. The total quantity of water supplied yearly was then estimated at 114,650,000 hogsheads, at an average charge, computed on the gross water rental, of 17*s.* 1*½d.* per 1,000 hogsheads, and affording an average daily supply to each house or building, including manufactories, of 241 gallons. About seven-eighths of the whole is supplied direct from the Head, at an elevation of 84 feet, and the remaining eighth at the higher pressure of 144 feet. The dividend in 1770 was 255*l.* per share; in 1810, 465*l.*; and in 1833, 617*l.*; but between the latter periods the advance has been in part derived from the augmented value of the old landed property of the company. The first instance on record of an increase in the rates of supply was in 1804 and 1805, when they were raised about 20 per cent. About the year 1811, on the introduction of the new water companies, the rates began to be depressed; and the depression went yet further until some time in the year 1817, when it was stopped by the arrangement which took place among the companies. It was not, however, until 1823 that the new company restored their rates to the amount at which they stood in 1810, the year before the contest; and they then laid down a distinct scale of price (50 per cent. advance) for high service, which had never been furnished before the introduction of iron pipes, and, consequently, had no analogy in the rates of 1810.

The deficient supply of water by the New River Company to the city

was made a subject of complaint in the Common Council, in 1836, and it was referred to the City Lands Committee to examine into the circumstances. Rather than resort to supplies in aid from the Thames, the company had, in many instances, discontinued the supply from the main, to the great inconvenience of the many persons who were unprepared with cisterns, or had none of sufficient size to meet such a change of system. On many occasions of fire, too, it was shown that the supply, for want of regulation to procure the attendance of the turncocks, had been insufficient for the due security of the vast interests concerned. But the officers of the company professing their readiness to satisfy every reasonable demand, their assurances were accepted. No other part of the town, however, has even this indirect means of influence over the companies or their officers.

The New River Company supplies all the Metropolis north of the Thames from Charing Cross, the Haymarket, Poland-street, the Tottenham Court-road, and the Hampstead-road on the west, to the Tower, Shoreditch, the Kingsland-road, and Dalston, on the east. "Where the New River commences at the Chadwell spring, the water is generally pure and transparent; but in passing through nearly 40 miles of a populous vicinity, without protection, it is unavoidably exposed to various impurities; the surface-water from the uplands, sewages from the villages, cattle treading down the edges of the river banks, all combining to produce discoloration of the water, which is still more increased by the operations necessary to restore the banks, and, near the metropolis, by numerous persons bathing and creating other nuisances.* In order to obtain an additional quantity of pure water, the company should be required to pump it from the river Lea, some miles below the Government powder works at Waltham Abbey; towards which purpose they have purchased Tottenham Mill and 30 acres of land adjacent, and constructed reservoirs to the extent of 30 acres adjoining the New River at Newington, and adjacent to the site of Tottenham mills; and there being also an old branch of the river Lea, not at present in use, it should be transferred to the New River Company, who thereupon should be required to embank and enlarge it, to not less than 20 acres, and convert it into a settling reservoir, upon which the pumping engines should be placed."†

The *East London Water-works Company*, established in the year 1807, under the provisions of the 47th of George III. c. 72, amended by the 48th of George III. c. 8, and extended by an Act of the 10th of George IV., have their establishment at Old Ford, on the river Lea, just above Bow bridge, and their office at 16, St. Helen's Place. Their engines can pump 11,293,776 gallons per day, or 79,681,875 hogshheads per annum. The capital is limited, according to Act of Parliament, to 500,000*l.*, in 5,000 shares of 100*l.* each; and the joint-stock capital created to the close of 1833 amounted to 443,333*l.*, upon which the net sum received was 436,139; being an average of 98*l.* 8*s.* per share. The total expenditure on the works had exceeded the amount received on subscriptions by 158,849*l.*, making the gross expenditure 594,988*l.*, including the moneys thus applied in lieu of being shared in dividends. The gross produce of the water rents in 1833 amounted to 53,061*l.* 10*s.*,

* The bathing is now more rigorously punished.

† Report of Thomas Telford, Esq., February 17, 1834, pp. 6, 7.

and the current annual expenses to 15,080*l.*, which would have left a net profit of 37,981*l.* 10*s.*, but for an extraordinary expenditure of 31,717*l.* 2*s.* 6*d.* The houses and buildings supplied were 46,421, without any extra charge for high service, such as had been introduced by the New River Company; and the average rate upon each house or building, including the large consumers, was 22*s.* 9*d.* The total quantity of water supplied yearly was then estimated at 37,810,594 hogsheads, at an average charge, computed on the gross water rental, of 28*s.* per 1,000 hogsheads, and affording an average daily supply to each house or building, including manufactories, of 120½ gallons per day, being only half the average supply in the New River district. The highest elevation at which the water is supplied is 107 feet, the mean elevation 60. During the competition with the New River Company, the dividends of the East London Company were only 2 per cent. per annum; but after its termination by agreement, they were raised to 5 per cent. per annum on the paid-up capital; the sum appropriated to their payment in 1833 being 22,166*l.* 13*s.* 4*d.* The average supply in this year was 5,593,896 gallons per day; the greatest 6,194,700 gallons, and the least 4,874,004 gallons.

The East London Water-works Company supply all those portions of the Metropolis, and its suburbs, which lie to the east of the city, Shoreditch, the Kingsland Road, and Dalston; extending their mains even across the river Lea into Essex, as far as West Ham. Formerly, the water supplied by this company was admitted into its settling reservoirs from the tide-way of the river Lea, at high water, and was therefore “the water of the river Lea subjected to the contamination of the district through which it passes in and below the neighbourhood of Bow, and to the constant agitation of the tides in driving upwards towards the water-works; thus rendering it no better, as far as regarded matter held in suspension, than the water of the Thames taken up in its passage through the Metropolis.” “But after the Commissioners of Inquiry into the quantity and quality of water supplied to the Metropolis had made their report in 1828, the East London Water-works Company took immediate steps to improve their water, both in quantity and quality, by obtaining powers, under their last Act of Parliament, in 1829, to take water from the river Lea, at or near Lea Bridge Mills, above the influence of the tide, and to convey it from thence to the works at Old Ford, by means of a new aqueduct (insulated from all other) into settling reservoirs, upwards of 18 acres in extent, from which it passes into the reservoirs out of which the pumps are supplied.” These works, which cost upwards of 60,000*l.*, Mr. Telford reported, in 1834, to have anticipated the improvements which he would have thought necessary for ensuring a better supply of pure water to the district dependent on them.

“The only point upon which any question might arise,” states Mr. Telford’s Report, “is rather of a prospective nature, inasmuch as it relates to the sewage of the district on the west side of the river Lea, between Tottenham Mills and Lea Bridge Mills, which sewage is now discharged into the Lea; but should a greater number of buildings, or a town, grow up on that side of the river, it would then be advisable to carry the sewage of that district clear of the portion of the river above named, either by conveying it under the river at one or more points, or by connecting it with the Hackney sewage, which goes into the tideway of the

river Lea, below Old Ford Lock. But this is a part of the subject which might, with propriety, come under the control of a general commission for the conservation of the water supplied to the Metropolis.”*

The *Chelsea Water-works Company*, established for the supply of Westminster in 1703, under the 8th of Geo. I. c. 26, and possessed also of a charter of the 9th of Geo. I., a writ of privy seal of the 7th of Geo. II., and a second Act of the 49th of Geo. III. c. 157, have their engines on the banks of the Thames, about a quarter of a mile east of Chelsea Hospital, and a few hundred yards below the mouth of the Ranelagh sewer; their office, at 16, Great Queen Street, Westminster. Their supplies are derived entirely from the river, opposite to their works; and they have two reservoirs, one in Hyde Park, near Grosvenor Gate, and the other in the Green Park, close to Piccadilly. The greatest quantity which their engines, in 1834, were calculated to raise, was 4,640,000 gallons per day; and in the preceding year, 2,337,000 gallons was the average quantity pumped daily to a height of from 45 to 135 feet. The capital subscribed and invested is 70,000*l.*, of which 60,000*l.* was expended previously to 1735, and the remaining 10,000*l.* about 1829 (subsequent to the Report of the Commissioners), in constructing a filter bed and reservoir. The sums actually expended in the works, however, in reservoirs, cuts, water-wheels, pipes, and steam-engines, including all moneys invested out of the water rental, in lieu of being shared in dividends, amounted, in 1833, to no less than 271,311*l.* 3*s.* 9*d.* The shares are 2,000 of 20*l.* each; 2,000 of 10*l.* each; and 800 of 12*l.* 10*s.* each. The gross water rental amounted, in 1833, to 22,906*l.*, and the annual charge upon this sum to 13,481*l.*, besides about 4,500*l.* yearly expended in various necessary works and improvements; leaving a net profit of 4,925*l.*, of which 4,800*l.* was employed in a dividend, being at the rate of 14½ per cent. on the paid-up capital. The water rental was derived from 13,892 houses and buildings, supplied at an average rate, including the large consumers, of 33*s.* 6*d.* The total quantity of water supplied in the year was 15,753,000 hogsheads, at a charge, computed on the gross water rental, of 29*s.* per 1000 hogsheads; and affording an average daily supply to each house or building, including manufactories, of 168 gallons. The highest elevation at which the water is supplied is 135 feet; and the mean elevation, 85. High service was given to 1,927 houses, but no separate charge was made for it. An increase of 15 per cent. had, however, been made in the rates, since 1828, for filtration. The district supplied by the Chelsea Water-works, is the whole of Westminster, and the suburban parishes, south and west of Charing Cross, Pall Mall, St. James's-street, Piccadilly, Park-lane, and the Uxbridge-road; from which latter line, the western limit of the Chelsea supplies, sweeps round the western verge of Kensington Palace, along Kensington Gore, and thence, before reaching Knightsbridge, across to the Old Brompton-road, which it follows down to the Kensington Canal, and is then continued along the latter to the Thames.

The *Grand Junction Water-works Company*, 7, Brook-street, Grosvenor-square, commenced its works in 1810, although its first Act was not obtained until the following year, being the 51st of Geo. III. c. 169, afterwards amended by the 56th of Geo. III. c. 4, 1816, the 59th of Geo. III. c. 111, 1819, and the 7th of Geo. IV. c. 140, 1826. This

* Report of Thomas Telford, Esq., February 17, 1834, p. 8.

company, ceasing to draw from the Grand Junction Canal, fixed their engines contiguous to the grounds of Chelsea Hospital, between this building and the Chelsea Water-works, and precisely at the mouth of the great Ranelagh sewer; and from this spot they drew the whole of their supply; pumping it to three reservoirs at Paddington, from which their district is served. But after the report of the Commissioners in 1828, they adopted at once two measures of improvement; first, the extension of their suction pipe much further into the river; and secondly, the completion of a system of depuration by deposit, which they had already commenced at their reservoirs in Paddington. The public attack being, however, mainly directed, at the time, against this company, it was compelled to look out for entirely new sources of supply; and when it appeared that nothing would be done by Parliament on the report of Mr. Telford (during the preparation of which they had suspended their design for obtaining a supply from the river Colne), they applied to Parliament for power to take water from the Thames between Richmond and Kew; and after considerable discussion in the House of Lords, the site was fixed from which the company now draw their supply, viz., between 300 and 400 yards above Kew Bridge, on the Surrey side of the stream. To raise water from this spot, the Company have constructed new works near Kew Bridge, with an engine power of between 400 and 500 horses, by which, through a main near six miles in length, and 30 inches in diameter, the water is pumped to the company's reservoirs at Paddington, where works were forthwith undertaken for its filtration.

The capital of the company, as returned to the Commons' Committee of 1834, is limited to 300,000*l.*; but only 275,000*l.* of nominal stock has been created, in 5,500 shares, nominally of 50*l.* each, but upon which only 37*l.* 9*s.* 1*d.* was really paid; creating a net paid-up capital to the amount of 206,000*l.* In addition to this amount, however, 50,005*l.* 1*s.* 4*d.* was expended on works out of the revenue, the shareholders foregoing all dividend for 9 years; 27,000*l.* more was expended on them by the Grand Junction Canal Company, and 48,169*l.* 0*s.* 3*d.* by the Regent's Canal Company; making a total investment of 331,174*l.* 1*s.* 7*d.* The gross water rental, in 1833, was, 21,461*l.* 1*s.* 10*d.* from ordinary service; 4,017*l.* 8*s.* 4*d.* from high service; and 675*l.* 18*s.* 10*d.* from street watering; making a total of 26,154*l.* 9*s.*; while the estimated current expenditure, exclusive of a reserve fund, and the cost of filtration, was 11,000*l.* The dividend in the same year was 2*l.* 10*s.* per share, or about 7 per cent. on the paid-up capital. The number of houses and buildings supplied was only 8,780, the average charge for ordinary service being no less than 48*s.* 6*d.* The total quantity of water supplied was 21,702,567 hogsheads, at a charge, computed on the gross water rental, of 24*s.* 1*d.* per 1,000 hogsheads; and affording an average daily supply to each house or building, including manufactories, of 350 gallons, besides 13 gallons for street watering. The highest elevation at which the water is supplied, is 151 feet 9 inches; and the mean elevation, 100 feet. The average quantity raised per day was 3,744,213 gallons, of which two-thirds are pumped from 90 to 120 feet, and the remaining third 120 to 152 feet; the number of houses paying for high service being 2,360*l.* The district supplied by these works comprises the best parts of the metropolis, being the great square of town included by Oxford-street, Poland-street, and the Haymarket, St. James's Park, the

Green Park, and Hyde Park, together with the Park-square region, comprised between the Edgware-road and the Uxbridge-road, and extending northward to the Great Western Railroad, and even beyond it, so as to include the whole of Paddington, to the west of the former road, besides a considerable neighbourhood in the angle formed by the western end of Oxford-street, and the southern end of the Edgware-road.

The West Middlesex Water-works Company, established in 1806, by the 46th of George III., c. 119, subsequently amended by the 50th of George III., c. 132, and the 53d of George III., c. 36, have their engines on the banks of the Thames, at the upper end of Hammersmith, and their office at 20, Nottingham-place, New-road. They draw water exclusively from that river, opposite to the works, whence it is pumped to two reservoirs, one at Notting-hill, Kensington, and the other on Primrose-hill. On extreme occasions the engines could raise 6,000,000 gallons per day to an elevation of 122 feet. The capital is limited by statute to 400,000*l.*; but a nominal joint-stock capital has been created, to the amount of 830,000*l.* in 8,300 shares of 100*l.* each; but upon which only 378,466*l.* 6*s.* 9*d.* has been paid. For twelve years, the shareholders got no dividends; but counting this want of returns as so much additional capital advanced, they make the public repay them very handsomely. In 1834, they reckoned the gross expenditure on the works, including sums raised by their water rents as well as those from subscribed capital, at 404,263*l.* 2*s.* 6*d.* The gross water rental in 1833, was 45,500*l.*, including the charges for high services and trades, and the supplies to ornamental waters, public buildings, gardens, barracks, and for watering the streets, &c.; while the annual expenditure, exclusive of a reserve fund, was estimated only at 18,000*l.* The dividends are 3*l.* per share, or about 7 per cent. on the paid-up capital. The number of houses, buildings, and other places supplied was about 16,000, at an average charge of 52*s.* 10*d.* The total quantity of water supplied was 20,000,000 hogsheads, being 1,080,000,000 gallons, or 180,000,000 cubic feet, at a charge computed on the gross water rental, of 45*s.* 6*d.* per 1000 hogsheads, or about $\frac{1}{2}$ *d.* per hogsh-head, conveyed an average distance of five miles. The average daily supply to each service was 185 gallons; and the greatest total quantity delivered per day 3,800,000 gallons, or 73·8 cubic feet per second. The height of the Kensington reservoir is 122 feet; and that of the Primrose Hill reservoir 188 feet; the mean elevation at which the water is supplied being 155 feet. About 3,500 houses receive extra service. About three-fourths of the services are from the Kensington reservoir, at the lower level of 122 feet. The waters supplied by this Company, are undoubtedly the best derived from the Thames; and at the time of the agitation which caused the appointment of a Commission of Inquiry and the Commons' Committee of 1828, they took measures, by the purchase of the Barn Elms estate, on the side of the Thames opposite to their works, for forming settling reservoirs which would much improve it; a project which, however, was never carried out. The district supplied by the West Middlesex Water-works comprises all that portion of the town lying west of Tottenham Court-road, the London and Birmingham Railroad, and the Hampstead-road, and north of Oxford-street, the Edgware-road, and the Great Western Railroad, with the exception of the parts of Paddington, to the west of

the Edgware-road, and the neighbourhood in the angle formed by Oxford-street and the Edgware-road which is supplied by the Grand Junction Water-works. The West Middlesex Works also supply Bayswater, and the suburban parishes of Kensington, Fulham, Hammersmith, and Chiswick.

Thus the only portion of London exclusively supplied with Thames water is the best inhabited part (served by the Chelsea, Grand Junction, and West Middlesex Companies) which lies west of Charing Cross, Tottenham Court-road, and the Hampstead-road. Mr. Telford, however, reported, that "two miles above Watford, the valley of the river Verulam affords a commodious situation for extensive reservoirs of water, and for allowing it to settle, if such should hereafter be deemed requisite. From this place a covered aqueduct may be made to descend with a uniform inclination of 18 inches per mile to Primrose-hill, terminating in a set of extensive receiving and distributing reservoirs, at the height of 146 feet above high water in the river Thames. From these reservoirs, each of the three before-mentioned companies may be supplied separately, and in such proportion as shall be determined."*

The *Southwark Water-works*, which were, until recently, a private property (though now vested in a company), and were the first called into existence on the south side of the river, are situated between London and Southwark Bridges. Subsequently to the union with them of the district formerly supplied by the wheel at the south end of London Bridge, a large sum was spent in the construction of new works, including those situated in Battersea Fields. The whole, in 1833, were capable of supplying 3,300,000 gallons daily; but the average supply is only 1,100,000 gallons. The gross water rental, in 1833, was 7,850*l.*; the number of houses and buildings supplied, 7,100; and the average rate per house, 21*s.* 3*d.*, including manufactories, but only 15*s.* without them. The dividends in 1844 amounted, in the whole, to 6,400*l.* The total quantity supplied was 7,000,000 hogsheads, at an average charge of 21*s.* per 1000 hogsheads. The average daily supply to each house or building, including manufactories, was 156 gallons. The cisterns into which the water is pumped are generally 38 feet above high water in the river, and this may be regarded as the mean elevation; but the greatest elevation at which water is supplied is 60 feet. More than 1000 houses received high service, though only 45 were charged for it. The districts which these works chiefly supply comprises nearly the whole of the parishes of St. George and St. Saviour, Southwark (being the greater part of the borough), in which it was for many years virtually prohibited to the neighbouring company of the Lambeth Water-works to lay down rival pipes in any of the paved streets; but a recent active rivalry has rendered it impossible to define the limits of supply of any of the South London Companies.

The *Lambeth Water-works Company*, 139, Blackfriars-road, was incorporated by an Act passed in 1785 (25th George III., c. 89), entitled an Act for supplying the inhabitants of the parish of Lambeth and parts adjacent with water, and which restricted the company from laying down pipes for the conveyance of water in any of the then paved streets of the parishes of St. George and St. Saviour, Southwark, in the supposition that these were sufficiently supplied by the old works. This

* Report of Thomas Telford, Esq., February 17, 1834.

Act was amended by a recent statute of the 4th of William IV.; and the Act incorporating the South London Water-works Company protects the district of the Lambeth works, as those of the Southwark Company were protected against the latter. The Lambeth Water-works are upon the banks of the Thames, between Westminster and Waterloo Bridges. They draw the water from the river immediately opposite to them, and have no reservoir into which to raise it at once for settling and for supply. The engines are capable of pumping 9,293,000 gallons daily; but the average daily supply in 1833 was only 2,075,000, and the maximum 2,575,000. The capital is limited by statute to 226,000*l.*; but a nominal capital of only 96,000*l.* in 100*l.* shares was ever raised, and only 37*l.* 8*s.* 4*d.* was ever paid up on each of these shares, the net amount of subscription moneys received having been but 35,920*l.* The gross expenditure for engines, pipes, &c., amounted, in 1834, however, to 182,553*l.*; but the sum beyond the amount of subscriptions paid up, had been contributed by the public in rents. The gross water-rental amounted, in 1833, to 14,808*l.*, the current annual expenditure to 6,500*l.*, and the sum applied in payment of dividends to 3,840*l.* or nearly 10 $\frac{2}{3}$ per cent. on the paid-up capital of the subscribers. The number of houses and buildings supplied amounted to 16,682, at an average charge of 17*s.* The total quantity of water supplied was 11,998,600 hogsheads, at an average charge, computed on the gross water-rental, of 24*s.* 8*d.* per 1,000 hogsheads, and in the proportion of 124 gallons daily for each house or building, including manufactories. The highest elevation at which the water is supplied is 185 feet; but the mean is only 55 feet above high water in the Thames. The recent breach of all understanding among the South London Companies has rendered this Company's present limits of supply also very irregular and indefinite.

The *South London or Vauxhall Water-works Company*, established by the 45th of George III., c. 119 (1805), have their establishment in Upper Kennington-lane, Vauxhall, with an engine on the river-side, at the foot of Vauxhall Bridge, and an iron tunnel into the bed of the Thames below low-water mark. The whole supply of water being derived from the Thames, they laid out large sums in constructing reservoirs and filter-banks, through which the water should pass in its course to the engine; and this is the only company on the south side of the Thames which supplies no waters that have not gone through some degree of purification in reservoirs. The engines of this company can pump 6,000,000 gallons per day, on occasion; but the average supply does not amount to one-fourth of this quantity. The capital is limited by Act of Parliament to 160,000*l.*; but the nominal joint-stock capital which has been raised is only 100,000*l.*, of which 98,000*l.* have been paid up, being 98*l.* upon each of 1,000 shares of 100*l.* each. The gross expenditure upon the works amounted, in 1834, to 245,306*l.* 13*s.* 10*d.* being 147,306*l.* 13*s.* 10*d.* more than the capital paid up, which sum was applied from the rents. The gross water-rental amounted, in 1833, to about 9,000*l.*, and the current expenditure to about 4,000*l.*, leaving a net income of 5,000*l.* per annum. The number of houses and buildings supplied was 12,046, at an average rate of 15*s.* per house, including, manufactories. About 1830 the yearly supply was calculated at 300,000,000 of gallons; and, in 1833, the daily supply was supposed to average about 100 gallons to each tenant, or 1,200,000 gallons

daily, but the Company do not retain the means of exact statement. The highest elevation at which water is supplied is 80 feet, but the mean is unknown.

The recent history of the supply of water to the parts of the metropolis included in the county of Surrey is thus summed up in a memorial from the Southwark and Vauxhall Water Companies to the Health of Towns Commissioners, dated 16th January, 1845, on the eve of an application to Parliament for their amalgamation:—

“The companies by which that portion of the metropolis is supplied (the Southwark, the Vauxhall, and the Lambeth Water Companies) were, from the periods of their being respectively established, and prior to 1834, in possession of charters which more or less permitted or encouraged competition; but in that year, having all had occasion to apply to the Legislature for further powers to raise capital, certain restrictions, which tended in some cases to preserve the several companies’ districts *free from the operations of the others*, were removed; and from that period a competition, in which sometimes two, sometimes all three companies, were engaged, has ensued, which was in full activity during the years 1839, 1840, and 1841, and which has only completely ceased since 1842.

“The results of that competition were as inconvenient to the public as they were disastrous to the companies, and afforded the very strongest illustration of the truth of the doctrine laid down by the Committee of the House of Commons in 1819, that the principle of competition cannot with advantage be applied to the operations of water companies.

“As regards the companies, the result of the struggle was an immense expenditure of capital in utter waste—double or treble sets of mains and pipes being laid down in districts where one set would better have served the inhabitants. An enormous annual outlay, equally in utter waste,—in the salaries of canvassers and commission to agents, who procured tenants; in the bills of plumbers, who changed the service-pipes of the tenants from one set of mains to another; in the charges of taking up and relaying roads and pavements on the like occasions; in double and treble sets of turncocks and pipe-layers; and, as the climax of absurdity, a payment of all parochial and district rates in every parish on all the pipes of all the companies, in proportion to the capital expended on assumed profits or interest, which it is needless to say had no existence. These expenses, being accompanied by a great reduction of rates, the result was such as might have been anticipated,—one of the companies, overwhelmed with difficulties and debt, ceased to pay dividends to its shareholders; the other two must shortly have arrived at the same condition; and the total return on more than half a million of capital expended has not since been, and is not now, more than $2\frac{3}{4}$ per cent. per annum.

“The inconvenience as regards the public was scarcely less striking. The funds which should have been devoted to improving the supply of water were wasted; the districts which, being densely peopled, were supposed likely to yield a return, were encumbered with double and treble sets of pipes, and disturbed by the daily breaking up of the streets and roads, consequent on the incessant change of tenants from one company’s mains to those of another, while other districts, less thickly inhabited, were left without the supply necessary for domestic conve-

nience or protection from fire. The impoverishment of the companies, arising from the double source of unnecessary expenditure and uncalled for reduction of rates, tended to incapacitate them from adequately discharging their duties to the public, and left them neither means, leisure, nor inclination for improving to the utmost the supply of water given to their tenants. Independently of the wasted capital in superfluous mains and pipes, the sum, as above stated, annually thrown away in plumbing, paving, and canvassing, was more than adequate to the depuration by deposit and filtration of the supply to all the tenants of the three companies. Neither was the sole end, which it might perhaps be supposed competition would answer, permanently attained. The prospect of impending ruin compelled a suspension of hostilities, and the rates of the whole district were raised to a level, which, though still very low as compared with the rest of London, are yet at least as high as would have obtained had there been no competition."

The Memorial then proceeds to call the attention of the Commissioners to an application to Parliament for a Bill for the establishment of a new company to supply the metropolis south of the Thames, as well as some portions of the town on the north of the Thames, with the waters of the Wandle, and observes that, under the present system of competition among companies in the discharge of this public duty, "the entire waste of the capital expended would be but the commencement of the evils which would be created by the execution of the proposed scheme. The competition recently terminated, would be renewed with augmented fierceness, as added capital would have to find remuneration from the same amount of tenants. * * * * This struggle would last probably for some years, attended of course by all its usual concomitants,—treble and quadruple sets of mains and pipes in every street, treble and quadruple officers and servants, treble and quadruple parish rates, and thousands annually spent in plumbers' bills and paving. The conflict would, of course, also have its usual termination. The companies would either agree to divide the whole district among them, or they would agree to a scale of rates. But there would then be an additional half million, on which interest must be paid (by the public in the shape of water-rates), and an additional establishment to be supported; burthens which an augmentation of from 50 to 100 per cent. of the present rates could scarcely suffice to support. That such would be the inevitable result of the establishment of the proposed company, the Directors are quite sure that the Commissioners are prepared, from the information already in their possession, confidently to anticipate."*

On the subject of a better supply of water to the southern parts of the metropolis, than that afforded by the existing companies, Mr. Telford reported, however, in favour of some such plan as that which the new company is proposing to carry out. "The best means of obtaining an ample supply of pure transparent water for the three Surrey companies is," he states, "by taking it from the river Wandle, at a sufficiently high elevation, which is found on the Croydon branch of that river, at the east end of Beddington Park, 90 feet above high water in the river Thames. From this place an aqueduct may be carried in nearly a direct line to Clapham

* Supplement to the Second Report of the Health of Towns Commissioners, p. 116-118.

Common, and there terminate in the requisite number of reservoirs, at a height of 82 feet above high water in the river Thames, which, except for Brixton Hill, supplied by the Lambeth company, exceeds the present heights of delivery by the several Companies.”* At present, on the south side of the river, “there are three companies in some streets, and three sets of pipes; in others two; and we have, at present,” states the engineer of the Southwark Water-works, “the exclusive supply of about one-tenth only of our district. On the average, there may be said to be two capitals in the same street. This is also the case with supplies of gas.”†

“Companies are forced into arrangement with each other for their own safety, and the security of their investment; *which arrangement is always against the consumer.* Thus, in the case of St. John’s Southwark: the Southwark Company had served the parish for many years, having pipes in every street. In 1841, the Vauxhall Company laid pipes in nearly every street in the parish, at an expense of 2,400*l.*, and succeeded in procuring a water rental, by change of tenants from the Southwark Company, of 81*l.* For the time, the rates throughout the parish were reduced 25 per cent.; but in 1842, the competition ceased by arrangement, and the rates were raised to the same, or a *somewhat higher level* than they were before the competition commenced, though they are still much below the parliamentary scale of rates. * * * * To resume all the privileges granted, and to buy up the whole works on terms of compensation to the paid officers and shareholders, and to commence *de novo* under one authority, though not the only, would undoubtedly be the most practical course. The public would gain much, and would be enabled to compensate all interested parties liberally. Everything might then go on easily, without the obstructions of making bargains and settling conflicts at every step, or attending to any other than the public interest.”‡

In addition to the great works now described, there are the *Old Hampstead Water-works*, which supply a large portion of Kentish and Camden Towns, and the *Kent Water-works*, situated upon the river Ravensbourne, at Deptford, the machinery employed by which consists of a water-wheel and two steam-engines. The water from this river is supplied chiefly to Deptford, Greenwich, Woolwich, and Rotherhithe. These works, being scarcely considered metropolitan, did not make returns with the others in 1834. At *Paddington*, too, there are some springs, belonging to the Bishop of London’s estate, which supply the immediate neighbourhood.

The table on pages 172–3 presents a view of the present supply of water to the metropolis, to which I would now call attention. If, to supply its deficiencies, we reckon the supplies by the Kent and Hampstead works at only one-twentieth of the supplies by the whole of the other companies, and suppose their statistics to be of a character not very different from that presented by the averages of the latter, it would appear from this table that the amount of private capital *bonâ-fide* invested in the supply of London with water is about 1,810,750*l.*; and the total expenditure on

* Report dated February 17, 1834, p. 4.

† Mr. Joseph Quick, before the Health of Towns Commissioners, March 28, 1844, 5948.

‡ Ibid, 4950–54.

the works (including that out of the rates, charged to the public as private capital because not employed in dividends) 3,303,887*l.*, which approaches to double the amount of paid-up capital, an enormous municipal debt upon the public, to the further reckless augmentation of which there is no legal or administrative limit. The average of the dividends of the several companies claiming this amount from the public is $3\frac{1}{2}$ per cent., but it is $8\frac{1}{2}$ per cent. on their paid-up capital only; and the difference between these rates will represent, with some approach to accuracy, the probable amount of actual waste in rival machinery and materials and in monopoly dividends, the burden of which is devolved upon the public in the shape of an annual water-rental, which amounted, in 1833, to about 291,500*l.*, and, in 1845, would amount to about 340,000*l.*, reckoning merely by the increase of the metropolis, and upwards of 380,000*l.* reckoning by the augmentation of the demand, if the price per quantity remains the same, and the rate of increase experienced by the East London Company be general. The price at which the companies made their supplies in 1833, on the average, was 26*s.* 10 $\frac{1}{2}$ *d.* per thousand hogsheads, and 29*s.* 8*d.* per house; the average of the mean quantities delivered by these several companies to each house or building being 180 $\frac{1}{2}$ gallons per day, and the average of the mean heights at which they delivered it 79 $\frac{1}{4}$ feet.

The yearly supply in 1833 appears to have been about 247,710,500 hogsheads, and is now probably about 330,000,000 of hogsheads, or nearly 905,000 hogsheads or 10,140,500 cubic feet, per day; being collectively a lake of upwards of 77 acres, 3 feet deep, distributed among a population of 1,911,022, or nearly 30 gallons per individual, and 240 per inhabited house. But here our calculations must, unsatisfactorily, terminate in the utter want of data for a more minute analysis of this supply, which comprises that for all public and manufacturing purposes, as well as for the domestic use of all classes of the population.

It is worthy of remark that the several companies, in the statements of their affairs made to Parliament, all reckon as capital invested, for which they are to demand a return, not only the money paid up on shares, but all the works executed with reserved funds, derived from the produce of the water rents, imposed without any limit on the public. And it will be seen by the little regard paid, in some instances, to the nominal number and value of shares specified in their several statutes, and the large sums expended out of the water-rates or rents, and not paid up by the subscribers, that they have, to a great extent, been simply little corporations, endowed with power to make the public of their several districts perform the labour of their own supply, and pay them an enormous commission for their kind superintendence; as clumsy a contrivance, so far as the public interests are concerned, as can well be imagined, though not without ingenuity, when regarded in another light.

“It is obvious,” states the Commons’ Committee’s Report of 1828, “that the *quantity* of water supplied in London and Westminster (the metropolis north of the Thames) is abundant; and in our examinations of individuals touching the quality of the water, we have in no instance met with complaints of deficiency of quantity; (i.e. in the neighbourhoods which can pay for it *ad libitum*). We have reason to believe that the hospitals, workhouses, and other similar establishments, where an

Supply of Water

1	2	3	4	5	6
Companies.	Sources of Supply.	Number of Shares.	Amount paid up on each Share.	Total Amount of Subscriptions paid up.	Total Estimated Expenditure on the works in 1833.
			Stated at nearly £. s. d.	Stated at £.	£.
New River . . .	Rivers Amwell and Lea.	72	7,000 0 0	500,000	1,116,964
East London . .	River Lea at Old Ford .	4,434	98 8 0	436,139	594,988
Chelsea . . . {	Thames between the	2,000	20 0 0	70,000	271,311
	Red House and the	2,000	10 0 0		
Grand Junction .	Ranelagh Sewer . .	800	12 10 0	206,000	331,174
	Thames at Breutford .	5,500	37 9 1		
West Middlesex.	Thames at Hammersmith	8,300	45 12 0	378,466	404,263
Southwark . . .	Thames at Battersea . .	No	return.	. .	. .
Lambeth . . . {	Thames near Waterloo	960	37 8 4	35,920	182,553
	Bridge				
South London. {	Thames at Vauxhall	1,000	98 0 0	98,000	245,306
	Bridge				
Kent	River Ravensbourne . .	No	return.	. .	. .
Hampstead . . .	Springs near Caen Wood	No	return.	. .	. .
Totals . . .	. . .	. .	. .	1,724,525	3,146,559
Averages of the Companies returned under each head in 1834 . .				246,361	449,508

	12	13	14	15	16
Companies.	Approximate number of houses in the several districts of supply in 1841.	Number of houses and buildings supplied according to return in 1833.	Average quantity delivered daily to each house or building in 1833.	Mean height at which delivered.	Average cost to each of the houses and buildings supplied.
	Inhabited houses.	houses.	gallons.	feet.	s. d.
New River	81,667	70,145	241	91½	26 6
East London	36,916	46,421	120½	60	22 9
Chelsea	16,789	13,892	168	85	33 6
Grand Junction . . .	13,260	8,780	350	100	48 6
West Middlesex . . .	21,336	16,000	185	155	52 10
Southwark	10,205	7,100	156	38	21 3
Lambeth	23,754	16,682	124	55	17 0
South London. . . .	19,532	12,046	100	{ perhaps } 50	15 0
Kent	12,187	. .	. .	. .	. .
Hampstead	4,000	. .	. .	. .	. .
Total	239,706	191,066	. .	. .	. .
Averages	27,940	23,888	180½*	79½*	29 8*

* These are the averages of the several Companies, but not the true averages for the whole Metropolis, which, however, are readily deducible from the above data. The whole of the data in this Table are derived from the Returns made to Parliament by the several Companies in 1834, with the exception of Columns 7, 9, and 13, obtained by an addition to the analogous Columns of 1833 of one-third, assumed as a fair proportion from the evidence of Mr. Wicksteed, before the Health of Towns Commissioners, that the supplies by the East London Company had been increased 30 per cent. between 1833 and 1843; and likewise the Columns 11 and 12, formed by dividing the population and inhabited houses, computed

to the Metropolis.

7	8	9	10	11	Companies.
Estimated yearly supply in 1845.	Yearly supply returned to Parliament in 1833.	Estimated daily supply in 1845.	Daily supply returned to Parliament in 1833.	Approximate Population of the several districts of supply in 1841.	
hhds.	hhds.	hhds.	hhds.	Inhabitants.	
152,866,666	114,650,000	418,812	314,109	637,455	New River.
50,414,125	37,810,594	138,120	103,590	346,783	East London.
21,004,000	15,753,000	57,537	43,178	133,000	Chelsea.
28,936,756	21,702,567	78,930	59,198	105,915	Grand Junction.
26,666,666	20,000,000	73,058	54,794	183,533	West Middlesex.
9,333,333	7,000,000	25,564	19,173	79,479	Southwark.
15,938,133	11,998,600	43,826	32,872	174,375	Lambeth.
9,333,333	7,000,000	25,570	19,178	143,325	South London.
..	..	..	..	81,157	Kent.
..	..	..	..	20,000	Hampstead.
314,533,012	235,914,761	861,417	646,092	1,911,022	Totals.
39,319,126	29,489,345	107,677	80,762	226,238	Averages.

17	18	19	20	21	22	Companies.
Cost of Supply per 1000 hogsheads.	Estimated yearly produce of water rents in 1845.	Yearly produce of water rents returned in 1833.	Dividends per share in 1833.	Dividends per cent. on total cost of works.	Dividends per cent. on paid-up capital.	
<i>s. d.</i>	<i>£.</i>	<i>£.</i>	<i>£. s. d.</i>	<i>£.</i>	<i>£.</i>	
17 14	131,077	98,308	617 0 0	4	9	New River.
28 0	70,748	53,061	5 0 0	3½	5	East London.
29 0	30,541	22,906	2 13 0	1½	14½	Chelsea.
24 1	34,872	26,154	1 9 0	4½	7	Grand Junction.
45 6	60,666	45,500	1 16 3	6½	7	West Middlesex.
21 0	10,466	7,850	2 10 0	..	..	Southwark.
24 8	19,744	14,808	3 0 0	2½	10½	Lambeth.
25 8½	12,000	9,000	4 0 0	2	5½	South London.
..	..	..	5 0 0	..	..	Kent.
..	..	..	..	..	..	Hampstead.
..	370,264	277,587	..	..	..	Total.
26 10½*	46,264	34,693	..	3½*	8½*	Averages.

within the Registrar-General's Bills of Mortality for the Metropolis, the limits adopted for which are nearly identical with those of the water supplies, among the several districts of supply portrayed in the map attached to the Second Report of the Health of Towns Commissioners, with a very near approach to exactitude for all except the districts to the south of the Thames, where recent competition has caused the supplies to be inextricably intermingled. The number of houses and buildings supplied evidently includes not only all which have the water "laid on," but all whose inhabitants resort to public stand-cocks, for which rents are paid by the landlords of the poorer classes of houses.

abundance of water is an essential requisite, are in all cases duly supplied; and upon the important subject of supply in case of fire, our evidence leads us to believe, that of late it has always been ample, and that when not immediately procured, the fault has lain with the turncocks; for among other advantages of the reservoirs annexed to the works upon the Middlesex side of the river, is that of having at command a large head of water, by which the mains are kept full, and in many districts are under considerable pressure. The supply of a large quantity of water upon any sudden emergency is thus ensured; and among other great advantages arising out of the substitution of iron for wooden mains, is that of their sustaining the pressure of a column of water, which it would have been impossible, in the former state of the works, to have commanded.

“As far, therefore, as regards the description and quantity of water supplied to the cities of London and Westminster, it appears that more than half the consumption is derived from the Thames; and that it is in such abundance as not only to supply all necessary demands upon ordinary and extraordinary occasions, but that a proportion is constantly suffered to run to waste, by which the cleansing of the drains of houses and of the common sewers is effectually accomplished, all accumulations of filth obviated, and the general healthfulness of the metropolis promoted.”*

With regard to the works which supply those parts of the metropolis lying on the Surrey side of the river, the Commissioners observe that “there appear to be no just complaints respecting the *quantity* of water furnished by any of these companies, *except* in cases of fire when there has occasionally been a serious deficiency. We have inquired into the causes of this, and are induced to refer it to the want of proper reservoirs for preserving a head of water on the mains, when the engines are not working. On these occasions, much time is often lost in sending to the engine of the district; and if the steam be not up, further and fatal delay sometimes occurs.”† The justice of this observation receives almost annual proof, in some dreadful conflagration among the great warehouses, manufactories, &c., of the most crowded parts of Southwark. Out of 459 recent fires on the south side of the river, the water, it was stated by Mr. Braidwood to the Health of Towns Commissioners, was either late, or deficient in quantity at 107; while during the same period, there were 1529 fires on the north side, at nine only of which the water was not ready, or the supply short.

It must be borne in mind, at the same time, that although the supply may be abundant to those who can and will pay for it, the arbitrary rates of the companies may completely prevent a sufficient use of it by the poor; and some of the evidence before the Health of Towns Commissioners expressly declares such to be the case. The rents are not uniform; but a usual price is 16s. for a small four-roomed house, if the landlord pays the rate, and 20s. if the tenant pays, or 8s. a-year for each family, supposing there to be a family in every two rooms. It is laid on three times a-week, for two hours each time. The tenants buy a butter-tub for 1s., with wooden hoops, which holds eight gallons.

* Report of Commissioners on the Supply of Water in the Metropolis, 1828, pp. 5, 6.

† Ibid., p. 6.

This they fill, and though they may take as much as they please, they take no more. Their consumption, therefore, is only 24 gallons per week. Some few buy pork-tubs, which hold 42 gallons; and still fewer may have wine-pipes, of 110 to 125 gallons; the former costing from 2s. 6d. to 3s., and the latter from 16s. to 1*l*. A family is content to pay 8s. a-year, or 1¾*d*. a-week, and should consume about 140 gallons, but they will not take enough.* In all the poorest parts of the town, however, the houses are destitute of such a supply. Pipes to each cannot be afforded; and the inhabitants get their water from common cast-iron stand-cocks, each supplying a whole street or neighbourhood. In the east of London, there are more than 500 of these common cocks. The rates for these cocks are paid by the landlord.† “A copious supply of water to the poor can, in my opinion,” states Mr. Wicksteed, “*be given by a public body only*; for supposing that in towns at present supplied by trading companies a supply were required for the poor, and that each parish were rated high enough to raise a sufficient sum annually to pay for a given number of common stand-cocks, it would be a very difficult matter to prevent the inhabitants generally from taking a supply from the cocks, and if this were not prevented, the rental of the company would soon be reduced.”‡

“Although there is no portion of the town,” state the Health of Towns Commissioners, “into which the mains and pipes of some water companies are not carried, yet we find that large numbers of the houses of the poorer classes receive no supply. In the district supplied by the New River Company, containing about 900,000 persons, about one-third are unsupplied; and in the district of the Southwark Company, 30,000 persons have no supply, although the pipes of more than one company are carried into some parts. A still greater proportion can obtain water only from stand-pipes, common to a large number of persons, and supplied only at intermittent periods. We have already pointed out the evils of this system, and we have no reason to believe them to be less injurious in London than elsewhere. They are attributable to the same causes,—the natural reluctance of the companies to supply the poor except through the medium of the landlord, and the expense of a separate cistern or water-butt for each house necessarily entailed by the system of intermittent supply.

“Our attention has been especially called in the Metropolis to the necessity of securing a liberal supply of pure water to the poorer classes by pipes, and rendering them independent of pumps and wells. The practice, hitherto almost universal, of retaining all refuse in cesspools beneath houses has, in many parts of the Metropolis, so entirely saturated the soil with injurious matter, as to render unfit for use the water obtained from pumps and wells. To this cause of injury may also be added the pollution from the escape of gas: this is not, however, confined to the wells; the water in pipes does not escape contamination from this cause. Mr. Mylne presents instances of such evils, and gives an example of the number of gas-pipes, belonging to competing companies, that are frequently found traversing the same streets. He states

* W. Gravatt, 4358; Charles Bratt, 1786; Hugh Biers, 1824; First Report, Health of Towns Commissioners.

† Wicksteed, 4511; Health of Towns Commissioners.

‡ Ibid., 4483.

that the whole of the soil is in some streets so completely saturated with gas, that if the boxes of the fire-plugs are covered for a few hours, the coal-gas collects so abundantly within them, as to ignite on the application of a light. This effect has been witnessed by members of this Commission. We are not prepared to offer an opinion how far this nuisance may be lessened by additional care in forming the joints of the pipes; but the facts adduced before us appear to afford reasons for consideration whether some means should not be adopted for regulating the number of gas-pipes to be laid in any one street. Most of the gas companies are already liable to be placed under regulations with regard to the mode of their supply. In the Acts for the establishment of gas as well as water companies, clauses are usually inserted to prevent the laying down of gas-pipes within four feet of the water-pipes, and making other provisions for security against the contamination of water. A system of constant supply, to which we have so frequently adverted, by keeping the water-pipes continually full, would materially contribute to prevent the indraught of the gas.”*

With regard to the quality of the waters at the several sources of supply, the Report of the Commissioners appointed nearly 20 years ago applies with as much force to the present state of affairs, as to that which they found existing in 1828; for while the eastern part of the town is supplied with the waters of the Lea, taken from Old Ford, and the central, with those of the New River, and the Thames, at Broken Wharf, every portion of it to the west of Charing Cross, is still supplied with Thames water, taken from the tideway, either at the mouth of the great Ranelagh sewer, at Hammersmith, or at Brentford; and every part of Surrey, with the like mixture of all vile compounds, taken at Pedlar’s Acre, near Waterloo Bridge, at Vauxhall Bridge, or at Battersea; the only difference being that the impurity of the supplies derived from the Thames is yearly augmented by the increasing population on its banks, the more general discharge of faecal matter by the sewers, and the more constant disturbance of the river by multiplied steam-boats.

“Assuming the supplies to be derived directly from the river, and to be subjected to no intermediate process tending to purification, it is sufficiently obvious that the state of the weather will materially affect the purity of the water, which is sometimes comparatively clean and clear, and at others loaded with various matters in mechanical suspension, rendering it more or less coloured and turbid. In the latter state, when thrown into cisterns and other receptacles of houses, it is manifestly unfit for immediate use; but after being allowed to rest, it forms a certain quantity of deposit, and thus may become sufficiently clear for ordinary purposes. This deposit, however, is the source of several evils; it renders the cisterns foul, and runs off into those pipes which issue from or near the bottom of the reservoirs. By the agitation which accompanies every fresh influx of water, this deposit is constantly stirred up, and becomes a renewed source of contamination to the whole mass; and although chiefly consisting of earthy substances in a state of minute division, it is apt also to contain such proportion of organic matters as will occasion a degree of putrefaction when collected together in any quantity, and especially in warm weather. Of this deposit, more or less is always collected, especially where the service is direct from the river;

* Second Report of the Health of Towns Commissioners, pp. 71, 72.

and although some of the companies have reservoirs of such magnitude as to enable them to serve water already purified by deposition, the system is still very imperfect, and the water is frequently supplied in a turbid state. In other cases, the companies' reservoirs, however eminently useful in cases of fire, become objectionable in regard to the purity of the water, since the mud accumulates in them, and also proportionately in the mains and branch pipes.

"By far the greater number of complaints which have been made to us with respect to the quality of the water have originated in the cause just alluded to, and hence some of the companies have attempted to get over the difficulty, by suffering the water to remain at rest for a sufficient time, to become clear before the public are supplied; and in this they have in some instances so far succeeded as materially to improve their service. When, however, from land floods, or other causes, the river is very thick, they cannot allow due time for such subsidence; and even when most perfectly performed, the insects contained in the water, so far from being got rid of, become, perhaps, even more numerous. This is another just cause of complaint in regard to the water, especially in hot seasons. To obtain an effectual supply of clear water, free from insects, and all suspended matters, we have taken into consideration various plans for filtering the river water through beds of sand and other materials; and, considering this, on many accounts, as a very important object, we are glad to find that it is perfectly possible to filter the whole supply, and this within such limits in point of expence as that no serious objection can be urged against the plan on that score, and with such rapidity as not to interfere with the regularity of service.

"It must, however, be recollected, that insects and suspended impurities only are separated by filtration, and that whatever substances may be employed in the construction of filtering beds, the purity of the water as dependent upon matters held in a state of solution cannot be improved by any practicable modification of the process. If, therefore, it can be shown, that water taken from the parts of the river whence the companies draw their supplies either is, or is likely to be contaminated by substances dissolved, or chemically combined, it will follow that the most perfect system of filtering can effect only a partial purification.

"In order to ensure the subjecting of all the various specimens of Thames water (which had been taken from the river with great care and under a variety of circumstances) to the most careful and rigid examination, upon one uniform system, we put them, for that purpose, into the hands of Dr. Bostock, a gentleman eminently qualified for the task by his extensive knowledge of chemistry, and his practical experience in this department of analysis. In his report to us he justly remarks that it would have required a much longer space of time than was allowed him to have performed a complete scientific analysis of so many specimens of water; but the results he obtained are quite sufficient for the object proposed, and to which we more particularly directed his attention, namely, "to ascertain how far the water of the Thames, contiguous to or in the neighbourhood of London, is in a state proper for being employed in diet and various other domestic purposes."

The general conclusion he deduces from the whole series of examinations is expressed in the following passage of his report:—

"It appears that the water of the Thames, when free from extraneous

substances, is in a state of considerable purity, containing only a moderate quantity of saline contents, and those of a kind which cannot be supposed to render it unfit for domestic purposes, or to be injurious to the health; but as it approaches the metropolis it becomes loaded with a quantity of filth, which renders it disgusting to the senses and improper to be employed in the preparation of food. The greatest part of this additional matter appears to be only mechanically suspended in it, and separates by mere rest. It requires, however, a considerable length of time to allow of the complete separation; while, on account of its peculiar texture and comminuted state, it is disposed to be again diffused through the water by a slight degree of agitation, while the gradual accumulation of this matter in the reservoirs must obviously increase the unpleasant odour and flavour of the water, and promote its tendency to the putrid state.

“Regarding the greatest part of the extraneous matter in the Thames as mechanically mixed with it, we may conceive that a variety of incidental circumstances will affect its quantity in the same circumstances of the tide; but the observations are sufficiently uniform to warrant us in concluding that the water is in the purest state at low tide, and the most loaded with extraneous matter at half tide. It would appear, however, that a very considerable part, if not the whole, of this extraneous matter may be removed by filtration through sand, and still more effectually by a mixture of sand and charcoal.

“We have also endeavoured to gain information from various other sources respecting the state and purity of the Thames water and its general fitness for domestic use; and from such inquiries it appears proved to us, that the quality of the water within certain limits, included in what may be called the London district, has suffered a gradual deterioration within the last 10 or 12 years. We found this opinion upon the well ascertained fact of the disappearance of fish from those parts of the river to such an extent as to have led to the almost entire destruction of the fisherman’s trade between Putney Bridge and Greenwich, and upon the circumstance that the eels imported from Holland can now with great difficulty be kept alive in those parts of the Thames where they were formerly preserved in perfect health. We also learn that the fishmongers in London find it impossible to preserve live fish for any length of time in water taken from the same district.

“The causes of these effects are, perhaps, principally to be traced to the increase of certain manufactories, amongst which those of coal gas are the most prominent, polluting the river by their refuse; to the constant passage of steam-boats, by which the mud is stirred up; and to the peculiar nature of that mud within the above-mentioned precincts. The very circumstance, also, of the great abundance with which water is supplied to the houses and manufactories of the metropolis, appears to be essentially connected with the augmented impurity of the river; for where refuse animal and vegetable matters of various descriptions used to be collected, and from time to time removed for the purposes of manure, it is now indiscriminately washed into the sewers and conveyed into the Thames, and the sewers themselves are rendered much cleaner than formerly by the quantity of water which runs to waste, and which, as already remarked, has rendered them less offensive, especially in those parts of the town where they used to be most liable to stagnation and

consequent putrescence. Thus it has been stated to us that the water of the river is more polluted immediately after heavy rains, which force down the contents of the sewers, than after a continuance of dry weather, when its course is sluggish or altogether arrested; and the results of experiments we directed to be made on the subject fully establish this fact. The great increase which has of late years taken place in the population of London, and of its suburbs on every side, must also be attended by a proportionate augmentation in the quantity of extraneous matter carried down into the Thames.

“There are other circumstances affecting the fitness of the water, as now taken from the river, for the supply of the town, which, though less general in their influence, should not be overlooked; such as the position of the suction pipes of the engines belonging to some of the companies in regard to the mouths of sewers, the quantity of dead animals thrown into the river in and about London, its contamination by the offal of slaughter-houses, and a variety of other causes which we need not here specify, but which will be found on reference to the evidence. Some of these we have inquired into in detail, and have anxiously sought for means by which the nuisances in question might be remedied or abated; but it is manifest that if the general quality of the river water be objectionable within the whole of that district whence the supplies for the metropolis are drawn, any remedies for local evils become comparatively unimportant, and although these diminish as we ascend the river, we apprehend that their influence, with that of the other contaminating causes, will be more or less *felt nearly to the extent to which the tide reaches*.

“The statements which have been made respecting the insalubrity of the Thames water, as supplied by the companies, have also been considered by us; and although from the few cases which have been brought before us of disorders imputed to this cause, we do not feel ourselves warranted to draw any general conclusions, we think the subject is by no means undeserving of further attention. There must always be considerable difficulty in obtaining decisive evidence of an influence, which, although actually operating to a certain extent as a cause of constitutional derangement, may yet not be sufficiently powerful to produce immediate and obvious injury. It cannot be denied that the continued use of a noxious ingredient in diet may create a tendency to disorders, which do not actually break out until fostered by the concurrence of other causes; for we unquestionably find an influence of the same kind exerted by other agents, which occasion merely a certain predisposition to disease, and of which the immediate operation must, therefore, be extremely insidious and difficult to trace. *It is obvious that water receiving so large a proportion of foreign matters as we know find their way into the Thames, and so far impure as to destroy fish, cannot, even when clarified by filtration, be pronounced entirely free from the suspicion of general insalubrity. In reference also to this question, we apprehend that there are no grounds for assuming the probability of any improvement in the state of the water drawn from the London district of the river.*

“Although the principal supply of water by the New River Company is not open to the same objectionable impregnations as that of the Thames, we think it, nevertheless, susceptible of much improvement.

The occasional deficiency in quantity which suggested the necessity of the engine at Broken Wharf, might be obviated by allowing a portion of that supply to be drawn from the River Lea, at Lea Bridge.

"But here, as in respect to the Thames, the water is occasionally very muddy, receiving, as it does, the drainage of a considerable extent of country, in consequence of a right claimed by the proprietors of adjacent lands, and which the Company have, at present, no means of obviating; neither have they any power to prevent persons from bathing in their aqueduct.

"These evils they would very gladly remedy, if enabled to do so; and their removal, together with the adoption of an extensive system of filtration, would materially contribute to the perfection of the New River supply. Great benefit would result, not only to the extensive district of London supplied by this Company, but also to the public at large, if the inducement to bathe in the open canal of the New River were superseded by the establishment of baths in the neighbourhood of the metropolis, to which the public might, under certain regulations, be allowed access. It has been stated to us in evidence, that the New River Company have voluntarily offered to furnish sufficient supplies of water for a purpose of such manifest and general utility.

"Taking into consideration the various circumstances to which we have now adverted, together with the details of evidence by which they are proved and illustrated, and also the facts derived from our own observation and experience, *we are of opinion, that the present state of the supply of water to the metropolis is susceptible of and requires improvement; that many of the complaints respecting the quality of the water are well founded, and that it ought to be derived from other sources than those now resorted to, and guarded by such restrictions as shall at all times ensure its cleanliness and purity.*"*

From this abstract of all authentic information on the subject, we may, I think, gather:—

That the supply of water to the metropolis, from the earliest period of its history down to the commencement of the 17th century, was a municipal duty of the corporation.

That the system of supplying water by companies commenced in the farming out of this duty by the corporation within the city, in which course they were subsequently imitated by Parliament without its limits, as the increase of buildings offered chances of profit to private capital.

That such companies ought never to have been allowed a separate municipal existence, by which, instead of being mere contractors under the local authorities, they have been enabled to constitute themselves independent corporations, using extensive powers of taxation and administration, with comparatively limited capitals of their own investment, but with every private interest which could lead them to oppose that of the public and neglect the poor consumer.

That their history exhibits a constant perversion of their great powers to the public injury and annoyance, alternately in tearing up the streets and wasting the capital raised by their water rents, not to supply neglected

* Report of Dr. P. M. Roget, William Thomas Brande, Esq., and Thomas Telford, Esq., Commissioners appointed by His Majesty to inquire into the State of the Supply of Water to the Metropolis, dated April 21, 1823. Sess. 1828, No. 257, pp. 7-11.

districts, but to get from a rival company the rich consumers already supplied, and then making mutual treaties to levy a monopoly price on these consumers, whom they assume to make over to each other's mercy.

That the parliamentary limitations on the profits of the several companies are quite deceptive, so long as they continue to charge as capital invested, for which they require a return, not only their own paid up capital, but such moneys raised by their water rents as have been invested in extensions of their works; amounting in one instance, even ten years ago, to more than five times the paid up capital.

That the arming of private companies with all the powers of local taxation and administration, has necessarily produced results as adverse to the interests of the public in regard to the quality, as to the cost of the supplies; the whole of the metropolis, in spite of 20 years of agitation, being still supplied with water from the foul tideway of the Thames, with the exception of the eastern end of the town, which enjoys the waters of the Lea, polluted only by the drainage of Hackney, &c.; and the central parts east of Tottenham Court Road and Charing Cross, which have those of the New River, except in times of drought, when they receive those of the Thames from the mouths of the metropolitan sewers.

That, while Parliament shall vainly encourage a system of competition among irresponsible companies, thus armed for individual oppression, and unlimited in number,—a system as injurious when carried into effect as when virtually superseded by mutual treaties of monopoly,—none of those great improvements can be made in the supplies, which are equally required for the health and safety of all classes, and the comfort, cleanliness, and character, of the poor.

That the Thames itself *above its tideway*, the Wandle on the south side of the great metropolitan valley, and the Verulam on the north of it, offer boundless supplies of pure, soft, and wholesome water, which properly constituted authorities for the supply of the metropolis might bring into and distribute throughout it, to every house, whether of the poor or the rich, at an outlay the interest of which would be far less than the sums which will be levied on the community by the companies for supplies at once bad and defective.

That, to allow a fair interest for the paid-up capital of the existing companies, whose operations have always been sanctioned by Parliament, is a necessary part of any such operation on behalf of the public, as likewise to employ, or part pension, their paid officers, as suggested by one of them in his evidence before the Health of Towns Commissioners, already quoted; charges which would purchase the existing machinery of distribution, and prevent further extravagant waste in its reduplication; a waste which will otherwise inevitably occur, and be charged upon the public by subsequent treaties of monopoly.

And that, with *constant* supplies thus brought to every door by the public authorities, it will be easily practicable, by sanitary laws, to compel the owners of tenements for the poor to have the water laid on in every habitation, with sinks and drains proper for its ample use; and to carry out the many other valuable suggestions for the advantage of the public health, and especially that of the poorer classes in the Metropolis, made by the medical, engineering, and architectural witnesses before the Health of Towns Commissioners, and contained in their valuable volumes recently laid by command before Parliament.

PROCEEDINGS OF THE STATISTICAL SOCIETY OF LONDON.

Fifth Ordinary Meeting, 1844-5, Monday, 17th March, 1845.

The following gentlemen were proposed as candidates for admission into the Society:—

J. Ingram Travers, Esq.	|	Major T. B. Jervis.
		Michael Ellison, Esq.

The following gentlemen were elected:—

J. W. Gilbert, Esq.	|	William Lister, Esq.
Thomas Stevenson, Esq.	|	Richard Sprye, Esq.
		Thomas Willis, M.D.

A paper by F. G. P. Neison, Esq., was read, "On the Laws of Sickness and Mortality in various Trades and Localities, indicated by the experience of Benefit Societies."

Sixth Meeting, 1844-5, Monday, April 21st, 1845.

J. W. Gilbert, Esq., was formally admitted a Fellow.

The following gentlemen were proposed as candidates for admission into the Society:—

W. D. Christie, Esq.	|	Braithwaite Poole, Esq.
----------------------	--	-------------------------

The following gentlemen were elected:—

J. Ingram Travers, Esq.	|	Major T. B. Jervis.
		Michael Ellison, Esq.

The following papers were read:—

1. On the Means of Forming and Maintaining Troops in Health in different Climates and Localities, by Assistant Surgeon Edward Balfour, Madras Army.
2. On the Adaptation of the different Railway Returns to the general purposes of Statistical Inquiry, by W. A. Graham, Esq., F.S.S.

Seventh Ordinary Meeting, 1844-5, Monday 19th May, 1845.

The following gentlemen were elected:—

William Dougal Christie, Esq., M.P.	|	Braithwaite Poole, Esq.
-------------------------------------	--	-------------------------

The following gentlemen were proposed as candidates for admission into the Society:—

Joseph Toynbee, Esq.	|	Major Wilkinson.
Thomas James Watson, Esq.	|	John Towne Danson, Esq.
Rev. F. C. Cooke, M.A.	|	Major-Gen. Wm. Monteith, K.C.B.
		E. Wyatt Edgell, Esq.

The following papers were read:—

1. A Communication from Captain Larcom, on Marriages in Ireland, in answer to Mr. Hallam's Observations on the late Census of that country.
2. Observations on the Means of Preserving the Health of Troops, by selecting healthy localities for their Cantonments, by Assistant-Surgeon Edward Balfour, Madras Army.

STATE OF THE PUBLIC HEALTH IN THE LAST QUARTER.

"The quarterly returns are obtained from 115 districts, sub-divided into 576 Sub-districts. *Thirty-four* districts are placed under the metropolis, and the remaining 81 districts comprise with some agricultural districts, the principal towns and cities of England. The population was 6,578,912 in 1841."

The season to which the return refers was remarkable for its severity; the temperature fell lower than had ever before been observed and recorded in the neighbourhood of the metropolis. The mortality was proportionably high; 49,874 deaths were registered; 43,958 had been registered in the last quarter of 1844; and 38,784 in the September quarter of that year. The increase of deaths was therefore upwards of 11,000.

In the unhealthy countries of the world the mortality is highest in the hottest months, and this was the case formerly in London; but the greatest number of

deaths now invariably happens in the coldest quarter of the year. Thus the average number of deaths in the March quarters (45,484) of 1840-4 is 4,220 above the general quarterly average (41,264) of the same five years 1840-4; but the deaths in the first quarter of the present year were 49,874, or 4390 above the average of the March quarter of the previous five years. It is true that the population increased in the interval; but the increase of population would not account for more than half the excess of deaths.

The mortality was below the average in the milder climate of the south-western parts of the island, and in the coal districts of the north; it was highest on the eastern coast, in the metropolis, and North Wales.

In the city of Norwich 708 persons perished in the three months out of a population of about 62,000. The excessive mortality is accounted for in the notes; 57 deaths from small-pox were registered in East Wymer, 36 in Conisford, 40 in Mancroft. The registrar of Coslany states that the average "is exceeded by about 100 deaths, principally from small-pox. No deaths have occurred from small-pox after vaccination." (See the Registrar's notes under Norwich). Few of the victims of small-pox had been vaccinated; vaccination had not even been attempted in a great majority of cases; and thus, in one city, between 200 and 300 persons were suffered to perish in three months, others were blinded, maimed, and deformed for life, through negligence of the parents in the application of the protection discovered by Jenner, and placed at the disposal of all by the legislature. Other examples of the consequences of neglecting vaccination will be found in the notes. Ashton-under-Lyne is the only parish in which it is mentioned that the "Churchwardens and overseers have refused to carry out the provisions of the Act of 3 and 4 Victoria,"—to extend the practice of vaccination, by contracting with medical officers for the gratuitous protection of the poor. Sixty-one funerals took place in Ashton town from small-pox. In Jenner's life an instance is mentioned of the cost of the coffins, convincing the overseers of a certain parish of the advantages of vaccination, after all the higher arguments of humanity and justice had failed.

The high mortality was no doubt due in great part to the extreme coldness of the season; but, as is judiciously remarked by one of the Registrars of Stockport, "great as it is, there can be no question that the mortality would have been greater, in so severe a winter, had not the improved condition of the industrious classes enabled them to be both better clothed and fed."

In the metropolis small-pox, scarlatina, and measles, were epidemic; the deaths from diarrhoea and erysipelas were above, those from typhus below, the average. 411 deaths from hooping-cough were registered, which is 113 less than the average. The deaths from all pulmonary diseases rose; and 632 persons died of bronchitis, 606 of asthma, 1,296 of pneumonia. There was a marked excess of deaths from serofula, tabes mesenterica, cancer, atrophy, malformation, apoplexy, delirium tremens, and intemperance. 12 persons labouring under diabetes, died, (the average is 6); and it is worthy of remark that cold weather is always very fatal to this class of patients.

Districts in which the Mortality was above the average of five March quarters:— The five Metropolitan Districts, Portsea Island, Northampton, Norwich, Kidderminster, Dudley, Wolverhampton, Birmingham, Aston, Coventry, Nottingham, Stockport, West Derby, Blackburn, Chorlton, Manchester, Ashton, Bradford, Merthyr Tydfil, Holywell, and Anglesey.

Districts in which the Mortality was below the average of five March quarters:— Cambridge, Liverpool, Wigan, Prescott, Salford, Hull, and Pontypool.

The mean temperature of the 13 weeks at Greenwich was 35° 4. The temperature of the corresponding week, on an average of 25 years, was 38° 9, according to Mr. Henry's observations. The temperature of the first four weeks of January was from 1° to 6° above the average; from the close of January to the end of March the mean temperature was 8° below the average; and in one week (March 9th to 15th) it was 29° 1, or 13° below the average. On Wednesday morning, February 12th, a thermometer on grass fell to 6° below zero; the thermometer on flax, cleared of snow, was 12° 5 below zero, probably a point lower than has ever been recorded in this climate before. At the same time a thermometer on long grass under snow was 26°; showing, in a striking manner, the protection snow affords vegetation against sudden extremes of temperature. The temperature of the air fell in the night to 8° 8.

The meteorological returns from other parts of the kingdom, though not all made on a uniform plan, are highly interesting; and exhibit differences in the results which could scarcely have been anticipated in the absence of direct evidence.

MORTALITY OF THE COUNTRY.

Quarterly Table of the Mortality in 115 of the Districts of England, (including the principal Towns.) showing the Number of Deaths registered in the Four quarters of 1844, and in the quarter ending March 31st, 1845. Also the average Number of Deaths in the Five quarters, ending March 31st, 1840—1844.

DISTRICTS.	Popula- tion 1841.	1840-44		Deaths in the Winter Quarter ending Mar. 31, 1845.	DISTRICTS.	Popula- tion 1841.	1840-44		Deaths in the Winter Quarter ending Mar. 31, 1845.
		Quarterly Average*					Quarterly Average*		
		Of Five Years.	Of Five March Quarters				Of Five Years.	Of Five March Quarters	
<i>Metropolis.†</i>									
West Districts . .	301,326	1,758	1,890	2,240	<i>North Midland Division.</i>				
North Districts . .	366,303	2,188	2,384	2,781	Leicester . .	50,932	364	431	446
Central Districts . .	374,759	2,307	2,542	2,767	Lincoln . .	36,110	192	214	196
East Districts . .	303,247	2,596	2,774	2,976	Nottingham . .	53,080	367	393	479
South Districts . .	479,469	3,099	3,314	3,764	Basford . .	59,634	322	367	348
Total . .	1,915,104	11,948	12,904	14,528	Derby . .	35,015	228	262	250
<i>South Eastern Division.</i>									
Maidstone . .	32,310	186	207	235	Stockport . .	85,672	537	623	723
Brighton . .	46,742	270	278	262	Macclesfield . .	56,018	374	466	483
Isle of Wight . .	42,547	194	197	228	Great Bough- ton (including Chester) . . }	49,035	298	351	365
Portsea Island . .	53,036	312	328	388	Liverpool . .	223,054	1,926	2,016	1,816
Winchester . .	23,044	121	138	149	West Derby (adjoining Liverpool) . . }	88,652	582	572	673
Windsor . .	20,502	96	104	98	Blackburn . .	75,091	478	572	654
<i>South Midland Division.</i>									
St. Albans . .	17,051	82	92	122	Preston . .	77,189	525	594	613
Wycombe . .	34,150	192	215	229	Rochdale . .	60,577	391	465	503
Oxford . .	19,701	100	110	110	Bury . .	77,496	499	630	553
Northampton . .	28,103	172	190	249	Bolton . .	97,519	656	761	822
Bedford . .	31,767	182	212	308	Wigan . .	66,032	449	540	452
Cambridge . .	24,453	151	172	154	Prescott . .	43,739	250	308	262
<i>Eastern Division.</i>									
Colchester . .	17,790	168	116	117	Chorlton . .	93,736	616	621	868
Ipswich . .	25,254	142	160	124	Manchester . .	192,408	1,531	1,648	1,934
Norwich . .	61,846	377	395	703	Salford . .	70,228	495	533	497
Yarmouth . .	24,031	131	147	165	Ashton . .	173,964	1,133	1,323	1,663
<i>South Western Division.</i>									
Devizes . .	22,130	123	142	156	<i>York Division.</i>				
Dorchester . .	23,380	114	133	123	Sheffield . .	85,076	556	637	651
Exeter . .	31,333	207	229	208	Huddersfield . .	107,140	549	622	701
St. Thomas . .	47,105	216	242	231	Halifax . .	109,175	581	670	738
Plymouth . .	36,527	227	248	261	Bradford . .	132,164	824	897	1,120
Redruth . .	48,062	262	262	272	Leeds . .	168,667	1,096	1,161	1,228
Penzance . .	50,100	271	269	234	Hull . .	41,130	297	305	261
Bath . .	69,232	432	481	520	York . .	47,779	278	297	322
<i>Western Division.</i>									
Bristol . .	64,298	479	525	563	<i>Northern Division.</i>				
Clifton . .	66,233	386	422	448	Sunderland . .	56,226	339	354	335
Stroud . .	38,920	193	232	235	Gateshead . .	38,747	239	241	252
Cheltenham . .	40,221	224	251	267	Tynemouth . .	55,625	313	334	300
Hereford . .	33,645	198	224	202	Newcastle-on- Tyne . . }	71,850	465	499	466
Shrewsbury . .	21,529	142	160	164	Carlisle . .	36,034	213	252	215
Worcester . .	27,130	160	170	173	Cockermouth . .	35,676	166	190	221
Kidderminster . .	29,408	162	196	233	Kendal . .	34,694	176	196	218
Dudley . .	86,028	523	577	776	<i>Welsh Division.</i>				
Walsall . .	34,274	205	237	260	Abergavenny . .	50,834	319	388	410
Wolverhampton . .	80,722	524	591	648	Pont-y-pool . .	25,037	137	160	139
Wolstanton . .	32,669	211	244	276	Merthyr Tydvil . .	52,864	363	419	508
Birmingham . .	138,187	912	1,007	1,275	Newtown . .	25,953	126	147	152
Aston . .	50,928	290	304	353	Wrexham . .	39,542	221	267	238
Coventry . .	31,028	208	210	271	Holywell . .	40,787	204	254	312
					Anglesey . .	38,105	152	171	229
					Total exclu- sive of the Metropolis . .	4,663,808	29,316	32,580	35,346
					Grand Total	6,578,912	41,264	45,484	49,874

* The last quarter in the Metropolis ended March 29, 1845.

† Wandsworth District is included in the return for the Metropolis.

MORTALITY OF THE METROPOLIS.

A Table of the Mortality in the Metropolis, showing the Number of Deaths from all Causes, registered in the 13 Weeks ending March 29th, 1845.

CAUSES OF DEATH.	Quarterly Average of Deaths in the 5 March Quarters, 1839-43.	Deaths in the Winter Quarter ending Mar. 29, 1845.	CAUSES OF DEATH.	Quarterly Average of Deaths in the 5 March Quarters, 1839-43.	Deaths in the Winter Quarter ending Mar. 29, 1845.
ALL CAUSES	12,600	14,528	III. Cephalitis	140	149
SPECIFIED CAUSES	12,550	14,491	Hydrocephalus	444	460
I. Zymotic (or Epidemic, En- demic, and Contagious) Diseases	2,119	2,506	Apoplexy	256	343
SPORADIC DISEASES.			Paralysis	228	298
II. Dropsy, Cancer, and other Diseases of uncertain or variable Seat	1,491	1,450	Convulsions	739	696
III. Diseases of the Brain, Spinal Marrow, Nerves, and Senses	2,034	2,193	Tetanus	8	3
IV. Diseases of the Lungs and of the other Organs of Respiration	4,101	4,923	Chorea	1	2
V. Diseases of the Heart and Blood Vessels	286	512	Epilepsy	62	62
VI. Diseases of the Stomach, Liver, and other Organs of Digestion	768	981	Insanity	15	15
VII. Diseases of the Kidneys, &c.	67	115	Delirium Tremens	18	24
VIII. Childbirth, Diseases of the Uterus, &c.	141	174	Disease of Brain, &c.	124	141
IX. Rheumatism, Diseases of the Bones, Joints, &c.	81	98	Laryngitis	7	23
X. Diseases of the Skin, Cel- lular Tissue, &c.	18	12	Quinsey	18	25
XI. Old Age	1,110	1,127	Bronchitis	232	632
XII. Violence, Privation, and Intemperance	333	400	Pleurisy	23	28
			Pneumonia	1,125	1,296
I. Small Pox	263	481	Hydrothorax	86	92
Measles	239	381	Asthma	555	606
Scarlatina	309	421	Phthisis or Consumption	1,822	1,972
Hooping Cough	524	411	Disease of Lungs, &c.	233	249
Croup	105	112	V. Pericarditis	11	33
Thrush	45	50	Aneurism	8	21
Diarrhoea	64	109	Disease of Heart, &c.	266	458
Dysentery	20	14	VI. Teething	214	227
Cholera	2	4	Gastritis	190	{ 14
Influenza	49	34	Enteritis		
Ague	5	5	Peritonitis	14	44
Remittent Fever	6	5	Tubercles Mesenterica	59	116
Typhus	406	362	Worms	5	8
Erysipelas	72	95	Ascites	7	24
Syphilis	8	21	Ulceration (of Intestines, &c.)	18	25
Hydrophobia	2	1	Hernia	27	31
II. Haemorrhage	33	29	Colic or Ileus	24	38
Dropsy	483	413	Intussusception	6	4
Abscess	51	10	Stricture	8	6
Noma	?	3	Hæmatemesis	4	14
Mortification	65	53	Disease of Stomach, &c.	49	68
Purpura	2	2	Disease of Pancreas	2	..
Scrofula	26	40	Hepatitis	14	22
Cancer	94	194	Jaundice	26	32
Tumor	22	5	Disease of Liver, &c.	102	131
Gout	19	4	Disease of Spleen	1	..
Atrophy	78	189	VII. Nephritis	6	6
Debility	279	270	Ischuria	2	..
Malformations	11	31	Diabetes	6	12
Sudden Deaths	228	207	Cystitis	4	3
			Stone	5	6
			Stricture	5	13
			Disease of Kidneys, &c.	39	75
			VIII. Childbirth	104	133
			Paramenia	3	5
			Ovarium Dropsy	5	6
			Disease of Uterus, &c.	29	30
			IX. Arthritis	6	4
			Rheumatism	36	35
			Disease of Joints, &c.	45	59
			X. Carbuncle	4	..
			Phlegmon	1	2
			Ulcer	8	4
			Fistula	5	1
			Disease of Skin, &c.	4	5
			XI. Old Age	1110	1,127
			XII. Intemperance	6	15
			Privation	10	8
			Violent Deaths	317	377
			Causes not specified	50	37

PRICES OF PROVISIONS,
Average Contract Prices of the Provisions and Fuel supplied to the Workhouses

Districts marked out by the Registrar-General, and Central Unions contained therein.	Average Weekly Cost per Head of In-door Paupers.			Wheaten Flour per Stone.	Wheaten Bread per 4lbs.	Meat—Pork, Beef, & Mutton per lb.	Salt Butter per lb.	Cheese per lb.	Potatoes.
	Food.	Clothing.	Food and Clothing.						
<i>Metropolis.</i>	<i>s. d.</i>	<i>d.</i>	<i>s. d.</i>	<i>s. d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>d.</i>	<i>s. d.</i>
East London	2 11	13 ³ / ₄	3 0 ³ / ₄	2 1	6	4 ¹ / ₂	6 ¹ / ₄	..	4 0 cwt.
Holborn	2 3	1 ³ / ₄	2 4 ³ / ₄	2 0	6 ¹ / ₂	5	5 ¹ / ₂	3 ¹ / ₂	4 0 cwt.
<i>South Eastern Counties.</i>									
Maidstone	2 4	13 ³ / ₄	2 5 ³ / ₄	2 0	6	4 ¹ / ₂	6 ³ / ₄	4 ¹ / ₂	3 0 cwt.
Portsea Island	2 5 ¹ / ₄	7 ³ / ₄	3 1	2 0	6	4	7	3 ¹ / ₂	3 6 cwt.
<i>South Midland Counties.</i>									
Northampton	2 11	10 ¹ / ₂	3 9 ¹ / ₂	2 1	5 ³ / ₄	5	12	5 ³ / ₄	..
Cambridge	2 5 ³ / ₄	5 ¹ / ₄	2 11	2 3	5 ³ / ₄	..	10	4 ¹ / ₂	Various
<i>Eastern Counties.</i>									
Ipswich	2 2 ¹ / ₄	7	2 9 ¹ / ₄	1 10 ³ / ₄	5 ¹ / ₂	5	9 ¹ / ₄	5 ³ / ₄	..
<i>South Western Counties.</i>									
Devizes	2 0 ¹ / ₂	4 ¹ / ₄	2 4 ³ / ₄	2 1	5 ³ / ₄	3 ¹ / ₂	..	3 ³ / ₄	1 11bshl.
Penzance	2 1	3 ³ / ₄	2 4 ³ / ₄	2 3 ¹ / ₂	6	5	9	10	3 9 ¹ / ₂ cwt.
Bath	1 10 ¹ / ₄	2 ¹ / ₄	2 0 ¹ / ₂	1 9	5 ¹ / ₄	2 ¹ / ₄	7 ¹ / ₂	3	10 0 sack
<i>Western Counties.</i>									
Stroud	1 10	0 ¹ / ₂	1 10 ¹ / ₂	..	5 ¹ / ₂	4	8 ¹ / ₂	3 ³ / ₄	5 0 bag
Wolverhampton	2 5 ³ / ₄	3 ¹ / ₂	2 9 ¹ / ₄	2 3	6 ¹ / ₄	4 ³ / ₄	9 ¹ / ₂	5	5 0 80lbs
<i>North Midland Counties.</i>									
Derby	2 0 ¹ / ₂	..	2 0 ¹ / ₂	2 0	5 ³ / ₄	5	12	5	6 8 cwt.
<i>North Western Counties.</i>									
Macclesfield	2 0 ¹ / ₂	3 ¹ / ₂	2 4	1 9	..	3 ¹ / ₂	8	6	9 10 load
Bolton	2 2 ¹ / ₄	5 ¹ / ₄	2 7 ¹ / ₂	1 9	5 ¹ / ₂	4 ¹ / ₂	7	5	7 6 load
Prescot	1 9	3 ¹ / ₂	2 0 ¹ / ₂	..	5 ¹ / ₂	3 ³ / ₄	12	..	2 8 bshl.
<i>North Eastern Counties.</i>									
Sheffield	2 7	3 ¹ / ₂	2 10 ¹ / ₂	1 10	..	5	..	6 ³ / ₄	6 0 load
Halifax	1 10 ³ / ₄	3 ¹ / ₂	2 2 ¹ / ₄	2 0	5 ³ / ₄	5 ¹ / ₄	9	7	8 0 load
Sculcoates	2 2 ¹ / ₄	8 ³ / ₄	2 11	2 1 ³ / ₄	5	4	12 ¹ / ₂	..	0 7 peck
<i>Northern Counties.</i>									
Gateshead	1 10 ³ / ₄	5	2 3 ³ / ₄	2 1	5 ¹ / ₂	5	11	6 ¹ / ₂	2 10 cwt.
Kendal	1 10 ³ / ₄	1 ³ / ₄	2 0 ¹ / ₂	1 10 ¹ / ₂	..	3 ¹ / ₂	9 ³ / ₄	5 ³ / ₄	0 2 ³ / ₄ st.
<i>Wales.</i>									
Pembroke	1 5 ¹ / ₂	3 ¹ / ₂	1 9	1 10 ¹ / ₂	5	4 ¹ / ₂	8 ¹ / ₂	2 ¹ / ₂	2 6 cwt.
St. Asaph	1 11 ³ / ₄	3 ¹ / ₂	2 3 ¹ / ₄	2 4	6	4 ¹ / ₂	11 ¹ / ₂	..	4 6 hob.

FUEL, &c.—(Continued from p. 91.)

of the following Unions, during the Quarter ended at Michaelmas, 1844.

Peas per quart.	Outmeal per lb.	Candles per 12 lbs.	Yellow Soap.	Coals per Ton.	Tea per lb.	Sugar per lb.	Milk per quart.	Miscellaneous Articles.
<i>d.</i>	<i>d.</i>	<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	<i>s.</i> <i>d.</i>	<i>d.</i>	<i>d.</i>	
$2\frac{1}{2}$	$1\frac{1}{4}$	5 0	40 0 cwt.	16 0	3 5	$6\frac{1}{2}$	$2\frac{1}{2}$	Table Beer, 5s. barrel.
$2\frac{1}{2}$	$1\frac{1}{2}$	4 11	40 0 cwt.	17 11	3 0	$5\frac{3}{4}$	..	Porter, 33s. barrel.
..	3	5 6	46 0 cwt.	20 9	3 8	$6\frac{1}{2}$	$1\frac{1}{2}$	. . . .
$2\frac{3}{4}$	$1\frac{1}{4}$	5 0	42 0 cwt.	15 8	..	..	..	Suet, 5d. lb.
..	$1\frac{1}{2}$	5 2	47 6 cwt.	16 0	3 6	7	$1\frac{3}{4}$	Rice, 16s. 6d. cwt.
3	$1\frac{1}{2}$	5 3	46 0 cwt.	23 9	3 8	6	..	Suet, 4s. stone. Rice, 2d. lb.
$2\frac{1}{4}$	$1\frac{3}{4}$	5 0	42 0 cwt.	18 6	..	..	..	Suet, 43s. cwt.
$2\frac{1}{4}$	2	5 6	0 $4\frac{1}{2}$ lb.	18 4	4 0	7	..	Bacon, 5d. lb. Beer, 7d. gall.
..	$1\frac{1}{2}$	$\begin{Bmatrix} 5 & 3 \\ 5 & 4 \end{Bmatrix}$	47 0 cwt.	14 0	3 10	$6\frac{3}{4}$	..	Suet, 5d. lb. Fish, 8s. $6\frac{1}{2}$ d. cwt.
$2\frac{1}{4}$	2	5 3	38 0 cwt.	14 0	3 6	$6\frac{1}{2}$	..	Rice, 17s. cwt.
2	..	5 6	37 0 cwt.	16 3	..	..	..	{Groats, 20s. cwt. Bacon, 6d. lb.
$2\frac{1}{2}$	$1\frac{1}{2}$	5 0	0 $4\frac{1}{2}$ lb.	$\begin{Bmatrix} 7 & 9 \\ 6 & 0 \end{Bmatrix}$	3 4	$6\frac{1}{2}$	1	{Rice, Flour, 50s. cwt.
2	$1\frac{1}{4}$	5 0	42 0 cwt.	8 6	4 0	7	..	. . . .
2	$1\frac{1}{4}$	5 0	42 0 cwt.	8 6	4 0	7	..	Rice, 16s. cwt.
$2\frac{3}{4}$	$1\frac{1}{4}$	5 6	0 $4\frac{1}{2}$ lb.	9 2	..	..	..	Treacle, 3d. lb.
2	$1\frac{1}{4}$	4 0	0 $4\frac{3}{4}$ lb.	7 1	..	..	1	. . . .
2	$1\frac{1}{4}$	4 10	41 6 cwt.	8 4	..	..	2	{Buttermilk, 2d. gall. Bacon,
$2\frac{1}{4}$	1	5 0	0 5 lb.	7 6	4 4	7	$1\frac{3}{4}$	{5d. lb.
2	$1\frac{1}{4}$	..	0 $5\frac{1}{2}$ lb.	9 0	4 2	$6\frac{1}{2}$	$1\frac{3}{4}$	{Wine, 1s. $10\frac{1}{2}$ d. bot. Gin, 1s. $7\frac{1}{2}$ d.
$2\frac{1}{4}$	$1\frac{1}{4}$	5 6	5 3 stone	$\begin{Bmatrix} 20 & 0 \\ \text{chald.} \end{Bmatrix}$	..	..	1	{pint. Salt, $3\frac{1}{2}$ d. st. Rice, 2s. 8d.
2	$1\frac{1}{4}$	5 6	44 0 cwt.	4 0	4 0	$6\frac{1}{2}$	..	{st. Coffee, 1s. 6d. lb. Tobacco,
..	$1\frac{1}{4}$	5 9	5 6 stone	12 11	4 2	7	$0\frac{3}{4}$	{3s. 5d. lb. Treacle, 3s. 8d. st. Ale
$2\frac{3}{4}$	$1\frac{1}{2}$	6 3	0 5 lb.	14 5	4 0	7	1	{and Porter, 1s. 5d. gall.
$2\frac{1}{2}$	$1\frac{3}{4}$	5 6	0 $4\frac{3}{4}$ lb.	12 6	3 6	$6\frac{3}{4}$	2	{Beer, 10d. gall.
2	$1\frac{3}{4}$	5 6	44 0 cwt.	4 0	4 0	$6\frac{1}{2}$	..	. . . .
..	$1\frac{1}{4}$	5 9	5 6 stone	12 11	4 2	7	$0\frac{3}{4}$	Coffee, 1s. 3d. lb.
$2\frac{3}{4}$	$1\frac{1}{2}$	6 3	0 5 lb.	14 5	4 0	7	1	Rice, 2s. st. Coffee, 1s. 6d. lb.
$2\frac{1}{2}$	$1\frac{3}{4}$	5 6	0 $4\frac{3}{4}$ lb.	12 6	3 6	$6\frac{3}{4}$	2	{Groats, 15s. cwt. Rice, $1\frac{1}{2}$ d. lb.
								{Salt, 2s. 6d. cwt. Spirits, 4s. qt.
								{Porter, $2\frac{1}{4}$ d. qt. Wine, 2s. pt.
								Rice, $2\frac{1}{4}$ d. lb.

QUARTERLY METEOROLOGICAL TABLE,
Compiled from the Weekly Tables furnished to the Registrar-General by the Astronomer Royal.

1845 Week ending	Phases of the Moon.	THERMOMETER.										In water of the Thames at Greenwich by the Self- Reg. Therm.			Difference between the dew point temp. and air temp.			WIND. Pressure in lbs. on the square foot.	Ratio in inches (7 days.)	Deaths at Three Ages (exclusive of violent and sudden deaths.)											
		Mean height of Bar. from 72 observa- tions, corrected and reduced to 32 inches.	Mean.			Dew Point.	Self-Registering.		In water of the Thames at Greenwich by the Self- Reg. Therm.	Difference between the dew point temp. and air temp.	WIND. Pressure in lbs. on the square foot.	Ratio in inches (7 days.)	Deaths at Three Ages (exclusive of violent and sudden deaths.)																		
			Highest during the week.	Lowest during the week.	Difference.		Highest in the sun.	Lowest on the grass.					Mean of 72 observations.	Of the highest on each day from 7 observations.	Of the lowest on each day from 7 observations.	Mean of 72 dif- ferences.	Mean of greatest on each day, 6 observa- tions.			Mean of least on each day, 6 observa- tions.	Difference between mean temp. of the week, and mean temp. of the same week on an average of 35 years.	General direction.	Greatest pressure in the week.	Mean for the week.	The amount of Horizontal movement of the air in each week.	miles 490	0 to 15.	15 to 60.	60 and upwards.		
Jan.	5	29-959	43-0	29-8	40-4	34-5	5-9	37-6	35-1	49-4	44-6	17-2	28-5	37-2	35-7	33-2	0	0	0	0-8	1-3	N.E. and S.W.	0-5	..	490	9-5	0-27	539	104	327	1320
"	11	29-904	50-5	31-3	44-3	37-3	7-0	40-3	38-7	53-7	48-4	24-2	34-0	39-9	38-3	1-6	3-4	0-2	4-9	S.S.W.	6-0	0-5	1080	9-4	0-54	461	356	272	1080		
"	18	29-701	46-4	34-0	43-6	37-7	5-9	40-8	38-8	54-7	47-2	21-5	31-0	41-4	41-1	2-0	3-6	0-5	5-5	S.	3-0	0-1	955	9-5	0-43	441	320	229	990		
"	25	29-755	48-3	30-5	44-0	34-5	5-5	39-5	36-7	53-6	50-5	17-8	27-9	39-3	38-4	2-9	5-9	0-2	2-0	S.W. and S.S.W.	12-0	0-9	1473	7-0	0-59	413	343	229	976		
Feb.	1	29-214	42-0	27-0	35-6	29-0	6-6	32-4	29-6	51-2	44-8	12-7	19-7	38-4	37-9	9-8	6-0	0-5	4-9	N.W.	13-0	1-1	930	7-8	0-45	448	318	204	976		
"	8	29-393	43-5	25-0	38-2	28-5	9-7	33-4	29-6	55-6	45-4	9-7	17-0	35-1	34-3	3-8	7-5	1-1	5-1	N.N.W.	4-5	0-4	960	4-7	0-08	421	321	221	963		
"	15	29-880	40-4	8-8	33-7	27-0	9-7	29-3	25-1	50-0	42-7	6-0	18-0	32-7	32-8	4-2	8-6	0-8	9-6	Variable	4-0	0-2	1095	6-4	0-27	440	392	250	1082		
"	22	29-829	38-4	20-8	35-6	27-0	8-6	31-1	26-5	62-5	51-3	7-7	16-5	33-8	33-5	4-6	9-1	1-0	7-9	Calm & Variable	1-5	0-0	1095	6-8	0-03	420	377	293	1097		
Mar.	1	29-774	47-2	29-7	42-6	33-1	9-5	37-5	33-0	61-5	52-9	9-3	28-3	37-0	36-2	4-5	8-7	1-2	2-6	Variable	4-0	0-5	915	8-9	0-45	433	404	260	1097		
"	8	29-926	40-5	18-8	34-1	24-2	9-9	29-3	25-4	60-8	50-0	5-9	18-1	36-1	33-6	3-9	7-6	1-2	11-9	N.E.	7-0	0-3	850	7-3	0-48	416	495	256	1079		
"	15	29-718	42-0	14-0	34-2	23-6	10-6	29-1	23-8	59-5	50-2	2-9	16-3	34-6	34-5	5-3	11-3	1-5	13-2	N.N.E.	5-0	1-0	1060	6-1	0-03	417	390	226	1083		
"	22	29-827	47-7	21-0	40-3	27-4	12-9	33-5	29-1	65-0	52-6	6-7	20-9	33-9	32-9	4-4	10-4	0-5	9-1	Variable	6-0	0-5	995	6-3	0-28	455	376	299	1132		
"	29	29-803	39-0	37-8	53-6	41-3	12-3	47-0	40-8	68-8	64-7	21-2	34-1	43-4	41-6	6-2	12-4	1-5	4-7	W.S.W.	11-0	1-7	1680	7-4	0-60	460	407	247	1115		
Mean, Highest, or Lowest, of the 13 weeks		29-788	50-0	8-8	40-0	30-9	9-1	35-4	31-7	68-8	49-6	6-0	23-8	37-2	36-4	3-7	7-7	0-8	3-5	..	13-0	0-6	1046	7-5	4-80	3814	4813	3310	13944		

* The Thermometer on the grass was 6-0, and 0-29 below zero on the 7th and 11th Week.

REVENUE.

An Abstract of the Net Produce of the Revenue of Great Britain, in the Years and Quarters ended 5th April, 1844 and 1845; showing the Increase or Decrease thereof.—(Continued from p. 93.)

Sources of Revenue.	Years ended April 5.			
	1844	1845	Increase.	Decrease.
	£.	£.	£.	£.
Customs	19,458,129	20,176,731	718,602	..
Excise	11,880,123	12,224,907	344,784	..
Stamps	6,472,040	6,714,840	242,800	..
Taxes	4,192,473	4,217,748	25,275	..
Property Tax	5,356,887	5,104,448	..	252,439
Post-Office	622,000	679,000	57,000	..
Crown Lands	147,500	125,000	..	22,500
Miscellaneous	1,134,477	1,067,354	..	67,123
Total Ordinary Revenue .	49,263,629	50,310,028	1,388,461	342,062
Imprest and other Monies.	205,865	429,901	224,036	..
Repayments of Advances .	927,483	1,067,774	140,291	..
Total Income	50,396,977	51,807,703	1,752,788	342,062
Deduct Decrease			342,062	
Increase on the Year			1,410,726	

Sources of Revenue.	Quarters ended April 5.			
	1844	1845	Increase.	Decrease.
	£.	£.	£.	£.
Customs	4,604,447	4,402,506	..	201,941
Excise	1,852,689	1,917,485	64,796	..
Stamps	1,639,011	1,742,461	103,450	..
Taxes	144,685	145,945	1,260	..
Property Tax	1,992,859	1,905,711	..	87,148
Post Office	174,000	178,000	4,000	..
Crown Lands	65,000	35,000	..	30,000
Miscellaneous	41,292	415,016	373,724	..
Total Ordinary Revenue .	10,513,983	10,742,124	547,230	319,089
Imprest and other Monies.	54,244	206,007	151,673	..
Repayments of Advances .	226,284	418,545	192,261	..
Total Income	10,794,511	11,366,676	891,254	319,089
Deduct Decrease			319,089	
Increase on the Quarter			572,165	

Consolidated Fund Operations.—The total income brought to this account in the quarter ended 5th April, 1845, was 10,982,002*l.*; the total charge upon it was 8,710,003*l.*; leaving a surplus of 2,271,999*l.* The amount of Exchequer Bills issued to meet the charge on the Consolidated Fund for the quarter ended January 5, 1845, and paid off out of the growing produce of that fund for the quarter ended 5th April, 1845, after deducting 600,000*l.*, paid off out of the Sinking Fund, was 1,495,929*l.* The probable amount of Exchequer Bills required to meet the charge on the Consolidated Fund in the quarter ended April 5, 1845, is stated at 2,937,529*l.*

CORN.

Average Prices of Corn per Imperial Quarter in England and Wales, with the Rate of Duty on Foreign and Colonial Wheat, during each Week of the First Quarter of 1845; together with the Average Prices for the whole Quarter.—(Continued from p. 94.)

Returns received at the Corn Office, 1844.	Wheat.		Barley.	Oats.	Rye.	Beans.	Peas.	Date of Certificates of preceding Prices, regulating Duties for the Week ensuing.	Duties on Wheat, per Quarter.	
	Weekly Average.	Aggregate Average of Six Weeks regulating Duty.	Weekly Average.	Weekly Average.	Weekly Average.	Weekly Average.	Weekly Average.		From Foreign Countries.	From British Possessions out of Europe.
Average for the whole Year 1844	s. d. 51 3	s. d. ..	s. d. 33 8	s. d. 20 7	s. d. 33 11	s. d. 34 5	s. d. 33 5	..	s. d. ..	s. d. ..
Weeks ended 1845										
Jan. 4 .	45 8	45 4	34 2	21 10	33 9	36 3	36 1	Jan. 9	20 0	5 0
11 .	45 10	45 5	34 5	21 7	31 4	35 9	36 0	16	20 0	5 0
18 .	45 7	45 6	34 7	21 8	31 4	35 7	35 8	23	20 0	5 0
25 .	45 7	45 7	34 2	21 3	32 11	35 4	36 1	30	20 0	5 0
Feb. 1 .	45 5	45 7	33 10	21 6	31 3	35 8	35 4	Feb. 6	20 0	5 0
8 .	45 5	45 7	33 0	21 6	30 1	35 1	35 7	13	20 0	5 0
15 .	45 4	45 6	32 3	21 7	29 6	35 0	35 0	20	20 0	5 0
22 .	45 2	45 5	32 4	21 7	30 2	35 0	35 3	27	20 0	5 0
Mar. 1 .	45 0	45 4	32 3	21 7	32 6	34 9	35 7	March 6	20 0	5 0
8 .	45 0	45 3	32 2	21 7	30 5	34 8	35 5	13	20 0	5 0
15 .	45 1	45 2	32 2	21 4	31 1	34 7	35 8	20	20 0	5 0
22 .	45 5	45 2	32 4	21 8	30 5	34 6	35 8	27	20 0	5 0
29 .	45 10	45 3	32 4	21 5	30 0	34 10	34 8	April 3	20 0	5 0
Average of the Quarter	45 4	..	33 0	21 6	30 1	35 1	35 6	..	..	..

Foreign and Colonial Wheat and Wheat-Flour Imported in each of the Months ending 5th January, 5th February, and 5th March, 1845; the Quantities upon which Duties have been paid for Home Consumption during the same Months; and the Quantities remaining in Bond at the close of them.—(Continued from p. 94.)

WHEAT.

Months ended	Imported.			Paid Duty.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1845	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.
5th Jan.	15,088 2	4,590 6	19,679 0	12,502 7	3,827 1	16,330 0	361,229 0	921 4	362,150 4
5th Feb.	2,105 3	1,344 2	3,449	5,16,567 2	2,257 2	18,824 4	344,576 0	92 5	344,668 5
5th Mar.	4,629 1	1,697 4	6,326	5,13,831 0	1,028 1	14,859 1	330,382 0	751 5	331,133 5

WHEAT FLOUR.

Months ended	Imported.			Paid Duty.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1845	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.
5th Jan.	8,914 2	17,573 3	26,483 1	261 3	24,500 3	24,762 2	254,989 2	7,701 3	262,691 1
5th Feb.	964 1	10,533 3	11,498 1	869 1	6,884 2	7,753 0	251,715 0	14,252 0	265,967 0
5th Mar.	1,053 2	257 0	1,310 3	585 3	3,039 2	3,645 1	245,958 2	11,413 3	257,372 1

CURRENCY.

BANK OF ENGLAND.

An Account, pursuant to the Act of the 7th and 8th Victoria, c. 32, for the Weeks ended on Saturday the 4th January, 1st February, 1st March, and 29th March, 1845.—(Continued from p. 95.)

ISSUE DEPARTMENT.

	Weeks ended, 1845.			
	4th Jan.	1st Feb.	1st March.	29th March.
	£.	£.	£.	£.
Notes issued	20,087,055	28,232,485	28,952,105	29,471,410
Government Debt	11,015,100	11,015,100	11,015,100	11,015,100
Other Securities	2,984,900	2,984,900	2,984,900	2,984,900
Gold Coin and Bullion	12,493,444	12,548,405	12,943,918	13,340,953
Silver Bullion	1,593,611	1,684,080	2,008,187	2,090,457
Total	23,087,055	28,232,485	28,952,105	29,471,410

BANKING DEPARTMENT.

Proprietors' Capital	14,553,000	14,553,000	14,553,000	14,553,000
Reserve	3,127,278	3,298,944	3,575,172	3,584,054
Public Deposits	7,366,643	2,852,124	5,475,984	7,321,855
Other Deposits	8,037,320	8,713,690	10,323,799	10,713,032
Seven Day and other Bills . . .	1,015,166	1,085,065	983,328	1,023,977
Total	34,099,407	30,502,823	34,912,283	37,195,938
Government Securities, including Dead Weight annuities	13,539,720	13,541,692	13,474,379	13,589,379
Other Securities	11,426,996	8,652,751	11,707,400	13,126,469
Notes	8,418,125	7,642,253	8,952,545	9,747,280
Gold and Silver Coin	714,566	666,145	777,959	732,816
Total	34,099,407	30,502,823	34,912,283	37,195,938

COUNTRY BANKS.

Average Aggregate Amount of Promissory Notes of Country Banks, which have been in Circulation in the United Kingdom, distinguishing the several Banks, or Classes of Banks, by which issued in each part of the Kingdom, during the four weeks ended 4th January, 1st February, 1st March, and 29th March, 1845.—(Continued from p. 95.)

Banks.	4th Jan. 1845.	1st Feb. 1845.	1st March, 1845.	29th March, 1845.
	£.	£.	£.	£.
England—Private Banks . .	4,427,711	4,576,895	4,412,530	4,452,961
Joint-Stock Banks.	3,059,434	3,134,851	3,089,988	3,147,797
Scotland—Chartered, Private & Joint-Stock Banks.	3,159,450	3,070,058	2,986,708	2,950,870
Ireland—Bank of Ireland. . .	3,917,800	3,983,050	3,991,050	3,946,625
Private and Joint-Stock Banks	3,065,751	3,115,066	3,130,508	3,105,552
Total	17,630,146	17,879,920	17,610,784	17,603,805

BANKRUPTCY.

An Analysis of the Bankruptcies in England and Wales, gazetted in each Month of the Quarter ended March 31, 1845; showing the Counties and Branches of Industry in which they have occurred.—(Continued from p. 96.)

COUNTIES.	January.	February.	March.	TRADES.	January.	February.	March.
Metropolis	31	26	28	<i>Agriculture and connected Trades.</i>			
Bedford . . . . .	..	1	..	Farmers	1	2	1
Berks . . . . .	..	..	2	Agricultural Implement	..	..	..
Bucks . . . . .	..	1	..	Makers and Wheelwrights. }	..	..	..
Cambridge	1	..	2	Corn Factors . . . . .	..	1	1
Cheshire . . . . .	..	1	1	Millers and Malsters . . . . .	..	1	2
Cornwall . . . . .	..	1	..	Hop Merchants . . . . .	..	..	..
Cumberland . . . . .	..	..	..	Brewers . . . . .	..	1	1
Derby . . . . .	..	..	1	Horse and Cattle Dealers, and }	1	3	2
Devon	1	2	1	Woolstaplers			
Dorset . . . . .	..	1	1	<i>Mining and connected Trades.</i>			
Durham	2	1	3	Mining Firms . . . . .	..	..	1
Essex	3	5	2	Blasting Works . . . . .	..	..	..
Gloucester	1	3	1	<i>Manufactures.</i>			
Hants	2	5	3	Woollen Manufacturers	1	..	2
Hereford . . . . .	..	..	1	Cotton „ . . . . .	..	..	..
Hertford	2	1	..	Linen „	1	..	..
Huntingdon . . . . .	..	1	..	Silk „ . . . . .	..	2	1
Kent . . . . .	..	..	6	Printers and Dyers . . . . .	..	2	..
Lancaster	7	14	15	Lace Manufacturers . . . . .	..	..	..
Leicester . . . . .	..	..	1	Hosiery „ . . . . .	..	..	..
Lincoln . . . . .	..	1	1	Hardware „	2	5	2
Middlesex (exclusive of the Metropolis) }	1	..	3	Earthenware „ . . . . .	..	..	..
Monmouth . . . . .	..	..	..	Glass „ . . . . .	..	..	..
Norfolk	1	1	1	Paper „ . . . . .	..	1	..
Northampton	3	..	..	Builders	5	4	6
Northumberland	2	1	2	Miscellaneous Manufacturers.	5	8	3
Nottingham	1	..	2	<i>Commerce.</i>			
Oxford . . . . .	..	..	..	Bankers and Merchants	6	1	3
Rutland . . . . .	..	..	..	Shipowners, Warehousemen, }			
Salop	1	1	3	Brokers, and Wholesale }	6	9	9
Somerset (including Bristol) }	1	5	3	Dealers generally			
Stafford	1	6	2	<i>Retail and Handicraft Trades.</i>			
Suffolk	1	1	..	Bakers . . . . .	..	..	..
Surrey (exclusive of the Metropolis) }	3	2	3	Butchers	2	..	1
Sussex . . . . .	..	1	2	Corn and Hay Dealers . . . . .	..	..	..
Warwick	1	..	..	Innkeepers and Victuallers	7	7	8
Westmoreland . . . . .	..	..	..	Wine and Spirit Merchants	4	1	6
Wilts . . . . .	..	1	..	Dealers in Grocery, Drugs, }	3	9	6
Worcester . . . . .	..	..	..	and Spices			
York (East Riding)	3	1	3	Makers of, and Dealers in, }	5	6	10
„ (North Riding)	1	3	4	Clothing			
„ (West Riding)	2	3	2	Makers of, and Dealers in, Fur- }	3	2	2
Wales . . . . .	..	1	1	niture			
				Coach Builders . . . . .	..	..	..
				Miscellaneous	20	26	33
Total	72	91	100	Total	72	91	100

QUARTERLY JOURNAL

OF THE

STATISTICAL SOCIETY OF LONDON.

SEPTEMBER, 1845.

Statistical Data for forming Troops and maintaining them in Health in different Climates and Localities. By Assistant Surgeon EDWARD BALFOUR, Madras Army.

[Read by JOSEPH HUME, Esq., M.P., before the Statistical Society of London, on the 21st April and 19th May, 1845.]

POLITICAL reasons may render it expedient to garrison a district or a country with soldiers, whose foreign origin, and language and customs, prevent their entertaining feelings in common with the natives of the land whom they may be required to coerce; but, where this is not required, from the higher state of health, and, therefore, of efficiency, which troops raised among the indigenous inhabitants of a country retain, it is of importance to employ them in their own land in preference to strangers; and, fortunately for the tranquillity of our rule, the people of India interest themselves so little in the wars that occur, and hostile feelings so rapidly subside, that the duties of our troops have become rather those of police, to check petty disturbances, and give effect to the orders of the civil authority, than of stern military coercion to overawe the countries in which they are located. The people of India may thus be very generally employed as soldiers in their native land; and it cannot be too prominently noticed, that the utmost care in selecting recruits, or attending to the men's health when enlisted, seems unable to retain foreign troops in equal health with that enjoyed by soldiers who are natives of the countries in which they are serving.

There seem to be circumstances, not well understood, inherent in a military life, which cause among soldiers, even in time of peace, and when serving in their native country, a somewhat higher rate of sickness and mortality than occurs among people of the same age in civil life; and in nearly all the foreign stations occupied by the British troops, the deaths among the soldiers exceed in amount the number that are annually carried off by disease and other causes in their native land. The mortality among foreigners residing in any of the countries of the globe is an important subject of inquiry to the British nation, who are scattered over so great a portion of it, and it is also a point of great importance in any inquiry into the causes of sickness among the soldiers of the empire, who for the most part have to serve abroad.

Colonel Tulloch states, that "so far as statistical inquiries have extended, there is no country, either temperate or tropical, where the mortality among the indigenous civil inhabitants, between the ages of 20 and 40, seems materially to exceed 16 per 1,000 annually; and probably

there is no country where troops composed of the indigenous inhabitants are subject to a higher rate."

Average Annual Mortality per 1,000 in Civil Life in Britain.

	Died per 1,000 per Annum, at the Age of 29 to 30.
Mortality at the age of 29—30, by the Carlisle Tables	10·
Mortality by Mr. Finlayson's observations, deduced from the duration of life among the Government Annuitants	13·
Mortality in 17 of the largest towns* where troops are generally sta- tioned	15·7
Mortality among the East India Company's labourers	12·5
Mortality among the parties insured in the Equitable Office from 1801 to 1832 inclusive, chiefly the better fed classes, between 20 and 40.	9·1
Mortality among the Metropolitan Police Force	9·0
Average Annual Mortality per 1,000 of Men in Civil Life in Britain	11·5

The different circumstances of most of the classes from whom the above averages have been drawn, prevent their being placed in comparison with soldiers. The inhabitants of towns are the individuals whose position most closely approximates with that in which troops are placed; and the mortality among the inhabitants of towns in the prime of life is nearly one-third greater than among the rural population. In comparing, therefore, the mortality of military with that of civil life, it becomes necessary to take for our standard the average of those towns in which the troops are generally quartered, and in the previous Table this is shown to be at the rate of 15·7 per 1,000.

Mortality among Troops of the Kingdom serving in their Native Country.†

	Annual Mor- tality per 1,000.
Average in civil life in 17 of the largest British towns,* at 20 to 40 years of age	15·7
Household Cavalry, from 1830 to 1836	14·5
Dragoon Guards and Dragoons, from 1830 to 1836	15·3
Troops serving in Ireland, 1797 to 1828, average strength, 36,921 .	15·5
Depôts of West Indian Regiments, from 1830 to 1836	18·5
Average Annual Mortality per 1,000 among British Troops in Britain	15·9

The deaths among the Foot Guards amount to 21·6 per 1,000 annually, but as causes, hitherto unexplained, seem to affect this branch of the

* The towns from which this average is drawn are Chester, Leeds, Bolton, Bury, Preston, Wigan, Bradford, Stockport, Macclesfield, with the averages of York, Hull, Norwich, Plymouth, Portsmouth, and Liverpool, and of Glasgow and London. The information in this Table has been drawn chiefly from Mr. Chadwick's Report on the Sanitary Condition of the Labouring Classes.

† These points of information have been obtained from the Statistical Reports on the Health of Troops in the United Kingdom.

service, increasing the deaths above the usual number, they have been excluded in striking the average mortality among the troops in Britain. The mortality among the residents of towns in civil life, and that among the military, who are generally located in the principal towns, so closely approximate, that 16 per 1,000 may be fairly received as the average of the civil inhabitants, as well as of the soldiers employed in Britain.

We thus obtain a standard by which to contrast the loss of life in Britain with that to which our armies are subject when serving in foreign countries, and we observe with regret, from the following Table, that in almost every colony of the empire, the mortality of our troops greatly exceeds the rate they are subject to in their native land.

*Average Annual Mortality per 1,000 of Mean Strength of Troops, Natives of the British Isles, serving in Foreign Countries during Peace.**

	Annual Mor- tality per 1,000.
New South Wales . . . Marshall	14.1
Cape of Good Hope . . . Reports, &c. . . 1818 to 1836	15.5
Nova Scotia and New Brunswick, ditto . . . 1817 to 1836	18.
Malta ditto . . . 1817 to 1836	18.7
Canada, Upper and Lower . . . ditto . . . 1817 to 1836	20.
Gibraltar ditto . . . 1818 to 1836	22.1
Ionian Islands ditto . . . 1817 to 1836	28.3
Mauritius ditto . . . 1818 to 1836	30.5
Bermudas ditto . . . 1817 to 1836	32.3
St. Helena, British Troops from 1816 to 1822, and 1836 to 1837	35.
Tenasserim Provinces . . . Reports, &c. . . 1827 to 1836	50.
Madras Presidency . . . Quetelet . . . 1826 to 1830	52.
Bombay Presidency 1826 to 1830	55.
Ceylon Presidency . . . Reports, &c. . . 1821 to 1836	57.2
Bengal Presidency . . . Quetelet . . . 1826 to 1830	63.
Windward and Leeward Command, Reports, &c. . 1817 to 1836	85.
Jamaica ditto . . . 1817 to 1836	143.
Bahamas, a small detachment . . . ditto . . . 1817 to 1836	200.
Sierra Leone, now withdrawn . . . ditto . . . 1819 to 1836	483.

If we extend our inquiries on this subject, we shall find that the annual decrement among the inhabitants of other countries when serving in their native land, is very similar to that occurring among the natives of the British Isles, under the same circumstances; and that with them, too, the mortality increases when they are employed in foreign climates. The average annual mortality in the Prussian army, for example, from 1821 to 1830, was 11.7 per 1,000 of mean strength, and among the French troops, from 1820 to 1822, and 1824 to 1826, it averaged 19.8 per 1,000 of mean strength annually. The Prussian army is composed of younger men than the British, and the deaths among the French troops may possibly include those on foreign service, and thus account for the lower ratio of the former, and the higher ratio of the latter.

In most countries, however, we find the native residents enjoying a higher degree of health than the foreigners who may be dwelling among them.

* The information in these Tables has been obtained from Inspector-General Marshall's work on Invaliding, and from Colonel Tulloch's Reports on the Health of the British Army.

Average Annual Mortality per 1,000 of Mean Strength of Soldiers of the British Empire, employed in their Native Countries.

	Annual Mortality per 1,000.
British regiments, natives of the United Kingdom, and serving there	15·9
Maltese Fencibles, natives of Malta	9·
Hottentot corps, aborigines of Southern Africa	12·5
Bengal Army, natives chiefly of the Northern provinces	13·
Madras Army, natives chiefly of the Peninsula of India	15·
Ceylon armed Lascareyns, natives chiefly of Ceylon, from 1821 to 1835	25·8
Average Annual Mortality per 1,000 Soldiers of the Empire in their Native Countries	15·2

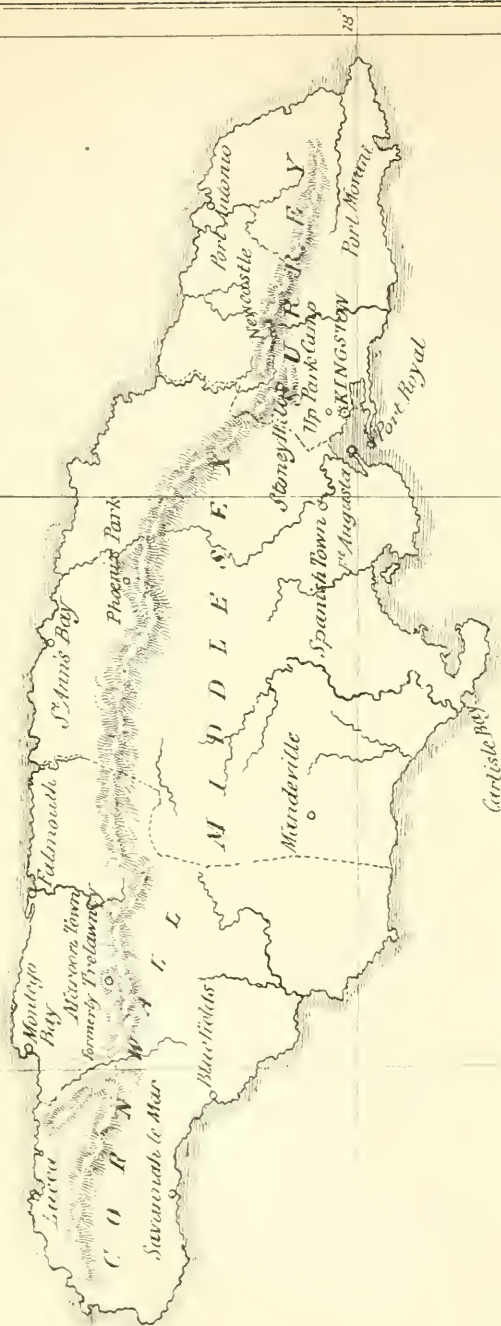
Fifteen per 1,000 of mean strength may thus be regarded as the annual ratio of mortality among the soldiers of the British Empire, when serving in their native countries. The deaths among the Royal African corps amount to 32 per 1,000; but little is known of the native country of the men composing it; being in general recaptured slaves, they may have come from the interior of Africa, possibly from table-lands and regions widely dissimilar to the hot and humid climate of Sierra Leone, where the corps is stationed; and it has been thought proper to exclude them in calculating the average.

But in very few of the foreign countries where the Imperial troops have to serve is their health so good as in their native lands. With them, as with the natives of the British isles, most foreign climates seem to have an injurious effect.

Average Annual Mortality per 1,000 of Imperial Troops when in Foreign Countries.

	Annual Mortality per 1,000.
Madras native troops, gun Lascars and Pioneers, serving in the Tenasserim provinces, from 1829 to 1836	12·
Ceylon gun Lascars, natives of Madras and Bengal, serving in Colombo	13·
First Ceylon regiment of Malays from Java, Penang, Malacca, and Singapore	25·
Negro troops, military labourers in Jamaica, from 1817 to 1836	30·
Ditto ditto in Honduras ditto	30·
Ditto Black pioneers, of mixed origin, born in the Mauritius, partly, and in part brought from Madagascar, Mozambique, 1825—1836	37·2
Negro troops brought from Africa, serving in Windward and Leeward Command, from 1817 to 1836	40·
Negro troops brought from Africa, serving in Bahamas, 1817 to 1836	41·
Ceylon pioneer corps, natives of Madras and Bengal, from 1821 to 1833, serving among the passes and forests of Ceylon, and greatly exposed	43·
Negro troops, serving in Ceylon, brought from Goa and Mozambique	61·
Ditto in Gibraltar, from 1816 to 1820	62·

JAMAICA



78°

77°

78°

77°

The previous Tables may be advantageously combined to exhibit—

The Average Annual Mortality per 1,000 among the Imperial Forces in their Native and Foreign Countries.

	Annual Mortality per 1,000.
British troops, natives of the Isles, serving in the United Kingdom	15.9
Ditto, ditto, serving abroad* without the	
Tropics, 21.1	42.2
Ditto, ditto, serving abroad† within the	
Tropics, 63.4	
British troops, natives of the Empire, serving in their native countries	15.2
Ditto, ditto, serving in foreign countries .	35.8

This Table shows that the indigenous inhabitants of tropical as well as of most of the temperate latitudes, however well suited to the climates of the countries where they and their forefathers were born, whenever sent out of their native lands, suffer from a rapid rise in the rate of mortality; and this increased rate is observed when the climate differs but little, as well as when it differs very greatly from the climate of the country in which they were born. A reference to the last Table will show that, among black troops employed in tropical regions, apparently not very dissimilar to their own, the deaths are more than double the number occurring in their native countries, being as 35 to 15. The rate of mortality among British troops, natives of the British isles, is still higher than this when serving from home. In countries without the Tropics, it is half as much more, or as 16 to 21. Within the Tropics, the mortality, in the average of the Commands, is four times higher than in Britain; and, in some of the colonies, the average number of deaths among the British troops, is increased to 20 times the usual amount occurring in their native land.

These rates, too, it must be remembered, only exhibit the mortality during peace, when the troops are placed under the most favourable circumstances. The ratio rises much higher, when to the ordinary hurtful influence of a foreign climate are added the harassing marches, short fare, exposure and anxiety, the invariable attendants of war; and great as the difference is between the number of deaths among our soldiers in Britain, and in the more unhealthy of our colonies, the history of our wars records a still more appalling mortality, and shows how fearfully climatorial agents affect the human frame when fully exposed to their action. The number carried off during war, in temperate as well as in tropical countries, is very great; and there are some facts inducing the belief that the native inhabitants suffer almost as much as the foreigners when equally exposed with the latter. The mental stimulus attending on success, and the depressing effects of defeats and reverses, no doubt exercise an influence over the health. But even with unvarying success,

* Average of New South Wales, Cape of Good Hope, Nova Scotia and New Brunswick, Malta, Upper and Lower Canada, Gibraltar, Ionian Islands, and Bermuda.

† Average of Mauritius, St. Helena, Tenasserim Provinces, Madras, Bombay, Ceylon, Bengal, Windward and Leeward Command, and Jamaica.

the mortality during war is very high, much higher than in most of our unhealthy colonies. More extended data than any we can here offer would be required to come to any definite conclusions, but the annexed Table will show, to some extent at least, the mortality to be expected during periods of war.

*The Average Annual Mortality per 1,000 of Mean Strength of British Troops during War.**

	Average Annual Deaths per 1,000.		
	From Wounds.	From Disease.	Total.
For the Expedition to Walcheren, 39,219 troops embarked for service, 28th August, 1809; of these, 217 were killed in action, and 4,175 died from disease, and on the return of the army to Britain, 11,513 were reported sick on the 23d December, a period of 117 days; supposing it to have continued, this would have given an annual ratio of	16·7	332·	348·7
In the Peninsula, from January, 1811, to May, 1814, a period of 41 months, out of a mean force of 61,511, the total deaths were from disease, 24,930; from wounds in battle, 8,889; total 33,819	42·4	118·6	160·9
And among the officers during the same period, there occurred	66·	37·	103·
In Ceylon, during 1818 and 1819, two years of war, but numbers actually employed unknown, 1st year . . . . .	..	..	218·
In Ceylon, during 1818 and 1819, out of 2,698, the average strength at Ceylon, 2nd year . . . . .	..	..	129·
In Burmah, during 1824, first year of war, deaths among all ranks	35·	450·	485·
In Burmah, during 1824 and 1825, first and second years of war, deaths among officers	106·6	300·	406·6
In Ceylon, negro troops in 1818 and 1819 . . . . .	..	..	132·3
In Burmah, 10 regiments, Bengal and Madras Sepoys and Pioneers, each supposed 800 strong employed there . . . . .	..	..	400·

War, however, is but a temporary state, and the loss of life, though proportionally severe, is but little in the aggregate compared with the annual loss in foreign countries during peace. It is, therefore, to the means of preserving the soldiers' health in peace that attention should be directed; and when we consider the little success that has attended our efforts to ascertain the causes of the great sickness and mortality which the soldiers of the empire suffer when employed out of their native countries, it cannot but be a source of much pleasure to see it established, that by employing the natives of the countries which we have conquered and wish to retain, to garrison and protect their own territory, we have it in our power to diminish greatly the waste of life: for it seems clearly proved by the foregoing Tables of the ratios of mortality among soldiers, that throughout our colonies in tropical or temperate latitudes, the mortality among the troops of the British Empire, when employed in the countries of which they are the aboriginal inhabit-

* The information in these Tables is collected from the invaluable Reports of Inspector-General Marshall and Colonel Tulloch.

ants, or in which they or their forefathers have been born and become naturalised, is only 15 per 1,000, or one in every 66 of their number ; while the deaths among our troops when in foreign countries, is often 10 and even 20 times greater.

These facts sufficiently indicate the importance of employing in our armies the natives of the lands that come into our possession, when not debarred from this by political considerations. Indeed, the Indian government have long practically acted on this ; and it is only alluded to here, that one of the principal objects of the plan, that of saving the lives of their troops, may not be lost sight of. The natives in the armies of Bombay, Madras, and Bengal, have been found almost as incapable as Europeans of bearing up against the noxious influences of several of the unhealthy parts of the country.* The Sepoys of the Bengal army, men recruited in the northern provinces of Hindostan, often suffer so severely in the hot and humid atmosphere of Bengal and Arracan, as to be completely broken up before their period of three years' service expires, and require a change to some of the northern provinces to recruit their health. And the Bombay regiments, which are almost similarly formed, with the addition of a few men from the table-land of the Dekhan, and the valleys of Maharashtra, suffer in the same manner when serving in the plains of Guzerat. I am aware how erroneous deductions from a limited number of cases are apt to be, and therefore refrain from instancing the few that have come to my knowledge, though the fact is generally known that a tour of duty in Bengal, Arracan or Guzerat, often cripples the regiments before it expires. Corps have accordingly been raised in many parts of India for sanatory as well as political reasons, to occupy particular districts and localities. A local corps composed of Mugs, the natives of Arracan, has been raised under the name of the Arracan Battalion, to perform the military duties there. In the Bengal Presidency, in addition to the regiments of irregular cavalry and infantry, there are several corps peculiarly local, raised and employed in unhealthy districts, and among the forests, hills, and passes, where the troops of the regular army are found inefficient ; and the Nasseree battalion, the Bhagulpore hill rangers, the Silhet light infantry, the Joudhpore legion, and the military police in central India, might be mentioned as instances of the carrying out of this system.

I am aware that political reasons led to the formation of many of these corps ; but the superior health of the aborigines to that of the men in the regular armies, who may be regarded as foreigners, was also kept in view when they were being raised.† The Talain corps in Burmah,

* "The native soldiers on the Bengal establishment," says Captain Henderson (As. Res., Vol. xx. Part 1), "are particularly healthy under ordinary circumstances. It has been found by a late inquiry, embracing a period of five years, that only 1 in 135. = 7.6 per 1,000 of the men on the actual strength of the army, died per annum. So injurious, however, is Bengal proper to this class of natives, in comparison with the Upper Provinces, that although only one-fourth of the troops are stationed in Bengal, the deaths of that fourth are more than a moiety of the whole mortality reported."

† Though the Indian armies are employed in Asia, and therefore in countries not altogether dissimilar in climate and products to that of their native provinces, there are, nevertheless, marked differences in climate existing in consequence both of latitudes and altitudes. And not more than half the Madras army, and about the same number of the Bengal troops, are at any time serving in the territories of which they are, strictly speaking, natives ; while nearly the whole of the Bombay army are strangers in the countries in which they are employed.

and the Nair brigade on the Malabar coast, are perhaps the only instances in the Madras Presidency of the adoption of this principle. The Ahmednugger police corps, raised among the Mhars, Ramossies and Bheels of the neighbourhood, to occupy the posts along the hill ranges of the Dekhan; the Bheel corps, formed to coerce their own tribes among the hills and valleys of Guzerat and Candeish; the Tannah and Concan, or Rutnagheree rangers, holding posts between the Concan and the Dekhan, are instances of the employment of the aborigines as troops by the Bombay government, who retain other local corps in several parts of the country. In Bengal there are more than 30 irregular corps of foot and horse, many of them employed for purely local purposes; and in Bombay they are as much required as in Bengal, because the humid atmosphere among the forests and western ghats, and the hot, moist climate of Guzerat, is found as inimical to the health of the Rajahpoots and natives of the Dekhan, of whom the regiments of the Bombay Presidency are composed, as the almost similar climates of the provinces of Bengal and Arracan are to their Bengal comrades.

The frequent occurrence and the severity of the diseases of tropical countries had long made us aware of the differences existing in the salubrity of neighbouring localities. "It is now ascertained that even in our own country there is a very material difference in the degree of health and longevity attained by the rural inhabitants of some counties compared with others; for instance, those resident in North and South Wales, Cornwall and Devon, Northumberland and Cumberland, have not so high a mortality, by at least a tenth part, as those in the central counties of the kingdom. The same remark also applies to the Highlands of Scotland; and it appears that the troops in the latter country have been rather more healthy than in England or Ireland."* But in most of our colonies, where the agent that excites disease acts with greater intensity, these differences are more strongly marked, every island, and almost every province, within the tropics, furnishing us with instances of disease and death occurring with great frequency in one place, while in another, only a few miles distant, the mortality may scarcely exceed what the troops would be subject to in their native land; and our knowledge of this fact, though acquired only by experience, and at a great loss of men and money, points out to us one means of preserving the lives of our men. It is true that political reasons may often render it necessary to retain our soldiers in very unhealthy districts, and we shall then be called upon to employ all our skill to protect their health. But where these state necessities are not very urgent, it will often be possible to locate men where they will be free from sickness, within a few hours' march of the unhealthy district over which they are required to watch. During times of trouble and disorder, much, as regards health, must remain subordinate to the safety of the force and the security of the district or country in which it is placed; but the profound quiet throughout our Eastern dominions is a sufficient proof that there are, at least, no such urgent demands upon our European troops there as should compel us to sacrifice their health; for this part of the army, though ready at all times to take the field at an hour's warning, have for more than a quarter of a century been employed only in distant expeditions against a foreign enemy, marching for months before they reached the

* Reports on the Sickness, Mortality, and Invaliding of the British Army.

scene of war. With such long marches before them, it must be immaterial from what position in a remote province the troops first break ground; a few miles to the right, or left, or rear, would not retard for a day their junction with the brigade with which they were destined to co-operate.* It is true that the chief authorities of the Government can alone possess that knowledge of the state of the people requisite to decide on the districts requiring the presence of troops, and with them the distribution of an army must ultimately rest; but it must be at all times useful to know the localities where a force may be placed with the certainty of their suffering the least possible loss from sickness and death. This subject has often before been noticed; but from various causes, perhaps from the limited number of facts that could be brought to bear on it, it has not hitherto attracted the attention it deserves. The reports published on the health of troops in the British colonies, enable us, however, to give numerous instances of great differences in the degree of health enjoyed in stations only a few miles apart; and, considering its importance, whether as a means of reducing the heavy sick lists, of lessening the number who die every year, of effecting a great saving to Government, and placing in their hands a greater amount of disposable force, it may not be deemed needless to enter somewhat at length into the details of those colonies where the differences in the degree of health are most marked.

The forces serving in the Windward and Leeward command, from 1817 to 1836, averaged 4,333 strong. During that period, 7,069 men died, and the average annual mortality was 85 per 1,000 of mean strength. But the following table of the rates of mortality in the different islands will show that it is possible to distribute the troops in such a manner as to diminish this number of deaths:—

	Annual Ratio per 1,000 of mean Strength died.	Average Strength.
Antigua and Montserrat . .	40·6	403
St. Vincent's	54·9	372
Barbadoes	58·5	1,197
Grenada	61·8	313
St. Kitts, Nevis, and Tortola .	71·0	290
British Guiana	84·0	834
Trinidad	106·3	310
St. Lucia	122·8	241
Dominica	137·4	236
Tobago	152·8	170

The island of Dominica lies detached from the others, being more than 100 miles north of St. Lucia, and it might be imprudent to weaken the force there; but the same objection does not apply to some of the others that are nearer each other.

* European troops could never be employed as the police of a district, the duties of which must be performed by the less expensive part of the Indian army—the native soldiers. The latter, indeed, are, to a great extent, employed in duties which might be as well done by undisciplined men; and though such employment tends greatly to injure discipline, it is, nevertheless, almost indispensable, in order to diminish the heavy expense of so large an army.

* —————	Ratio of Deaths per 1,000 annually.	Average Strength.
Antigua and Montserrat, 1817 to 1836 . .	40·6	403
St. Kitts and Nevis, only 50 miles North- West of Antigua }	71·0	293
St. Vincent's	54·9	372
St. Lucia, 40 miles North of St. Vincent .	122·8	241
Grenada	61·8	313
Trinidad	106·3	310
Tobago, 6 miles East of Trinidad, and 60 miles South-East of Grenada . . . }	152·8	170

If the degree of health enjoyed by the troops regulated their distribution, the vicinity of Antigua to St. Kitts, with double the ratio of deaths, and of St. Vincent's to St. Lucia, and of Grenada to Tobago, with more than twice the rate of mortality, might be easily taken advantage of to station the head quarters in the islands where the troops enjoy the highest degree of health, retaining only small detachments in the sickly islands. It is doubtless a serious matter at any time to weaken a force too much, and the risk from doing so is greater where there may be a difficulty of re-inforcing the troops on emergency. In such an island as the Mauritius, for instance, which is nearly two months' sail from any colony whence additional troops could be brought, to reduce the force might endanger its safety. But the Leeward Islands are all so contiguous that most of the unhealthy islands could receive support within a few hours after a re-inforcement was required; and, indeed, with the aid of steam and other means of communicating intelligence rapidly, even the islands that are farthest apart might, on an emergency, obtain assistance in a day; and this reasoning is still more applicable to the distribution of troops in a small island, or in the province of a continent where no obstacle exists to interrupt communication or obstruct the advance of troops.

Within the last few years the Bombay Government have applied their knowledge of the differences that exist in the salubrity of adjoining districts to save the lives of their European troops. "On the island of Bombay and Colabah, (a narrow slip jutting out from Bombay into the sea,) the health of the Europeans was so unsatisfactory, and the mortality so high, that they determined to remove them from Bombay, and leave only a small detachment, sufficient to supply a few guards. And the head quarters of four of the European regiments belonging to the Bombay Presidency are now located at Poonah and Kirkee, where the average rate of mortality for the last 10 years has been 23·3 per 1,000; a ratio very small for India, and not much exceeding that of the Foot Guards in England."†

* It is not meant to be asserted that the distribution in this Table is the best that could be adopted, or even practicable. The distribution, as was previously mentioned, must be left to the Government. The sole object is to make it manifest that great differences as to health do exist in adjoining localities; and I think we are called upon, as well from motives of humanity as for the purpose of saving expense, to occupy those which we know to be healthy, and search for others that may be equally so.

† Letter from Superintending Surgeon Glen, Bombay Army, to the Secretary to the Madras Government, dated 1st May, 1840.

It is to the course adopted by the Bombay Government that we would particularly direct attention. If the European forces at Poona were required in the neighbourhood, (though it must be again noticed that their duties are not those of police, neither to pursue plunderers nor to quell civil commotions,) the excellent roads and bridges, and other facilities for moving, bring the principal points in the districts within a few days' march; and even Bombay, the seat of government, is only 80 miles distant, a journey which infantry might easily accomplish in 60 hours.

As our knowledge of the colonies of the empire increases, we may confidently hope that many healthy localities will be discovered and occupied, as Poonah has been. But as this subject has been hitherto little attended to, some remarks may be made on a few of the sites which experience has proved to be well adapted for the residence of Europeans, as they serve to show how much we have it in our power to preserve the lives of men, and also to point out where healthy localities are likely to be met with. The principal portion of the European or native forces should be located in these healthy districts, and (if it ever be admissible in tactics to detach small bodies of men,) detachments or guards could be furnished to the unhealthy parts of the country, which political reasons, or the necessities of the state, prevented being altogether abandoned.

The island of Jamaica affords an instance to illustrate this. From 1817 to 1836, a force of 2,578 on the average was distributed over it. Many of the stations have proved excessively unhealthy; but "while in some parts of the island half the troops, or at the rate of 500 per 1,000 of the strength, were swept away every year, in others the average mortality has not exceeded 32 per 1,000."

	Ratio per 1,000 of Mean Strength died.	Average Strength.
Phoenix Park . . . from 1833 to 1836	29•	61
Montpellier . . . „ „	30•	67
Maroon Town . . . from 1817 to 1836	32•5	190
Mandeville . . . from 1833 to 1835	35•	75
Fort Augusta . . . from 1817 to 1836	78•3	389
Lucia . . . „ „	91•	83
Stony Hill, nine miles north of Kingston . . . „ „	96•8	362
Falmouth . . . „ „	110•6	194
Port Royal . . . „ „	122•3	254
Up Park Camp, two miles north of King- ston . . . „ „	152•8	726
Port Antonio . . . „ „	162•5	137
Spanish Town . . . „ „	177•1	336

And though such differences exist, the island is only 160 miles in extreme length and 50 in breadth, and could be traversed by troops from end to end in a few days. It is evidently, therefore, in our power to withdraw the soldiers from the stations where they have suffered so

much, and to place them in those localities which experience has proved to be favourable to the European constitution.*

Let us now turn to Ceylon, in which an average force of 2,149 men has been stationed since 1817. The principal stations are Colombo, Kandy, Trincomalee, Galle, and Niwera Elia which has been occupied since 1829. (Badulla and Ratnapoora, at one time stations, were abandoned in 1832.) The table given of the rates of mortality will show that at some of the stations the ratio of deaths is quadruple what it is at others : —

STATIONS IN CEYLON.	Ratio per 1,000 of Mean Strength died.	Average Strength.
Galle, from 1817 to 1836	23·	182
Niwera Elia, from 1831 to 1836	24·	116·6
Ratnapoora from 1817 to 1832 (now abandoned)	42·7	54
Colombo, from 1817 to 1836	51·9	920
Kandy „ „	60·7	433
Trincomalee „ „	91·4	284
Badulla, from 1817 to 1832 (now abandoned) .	97·1	75

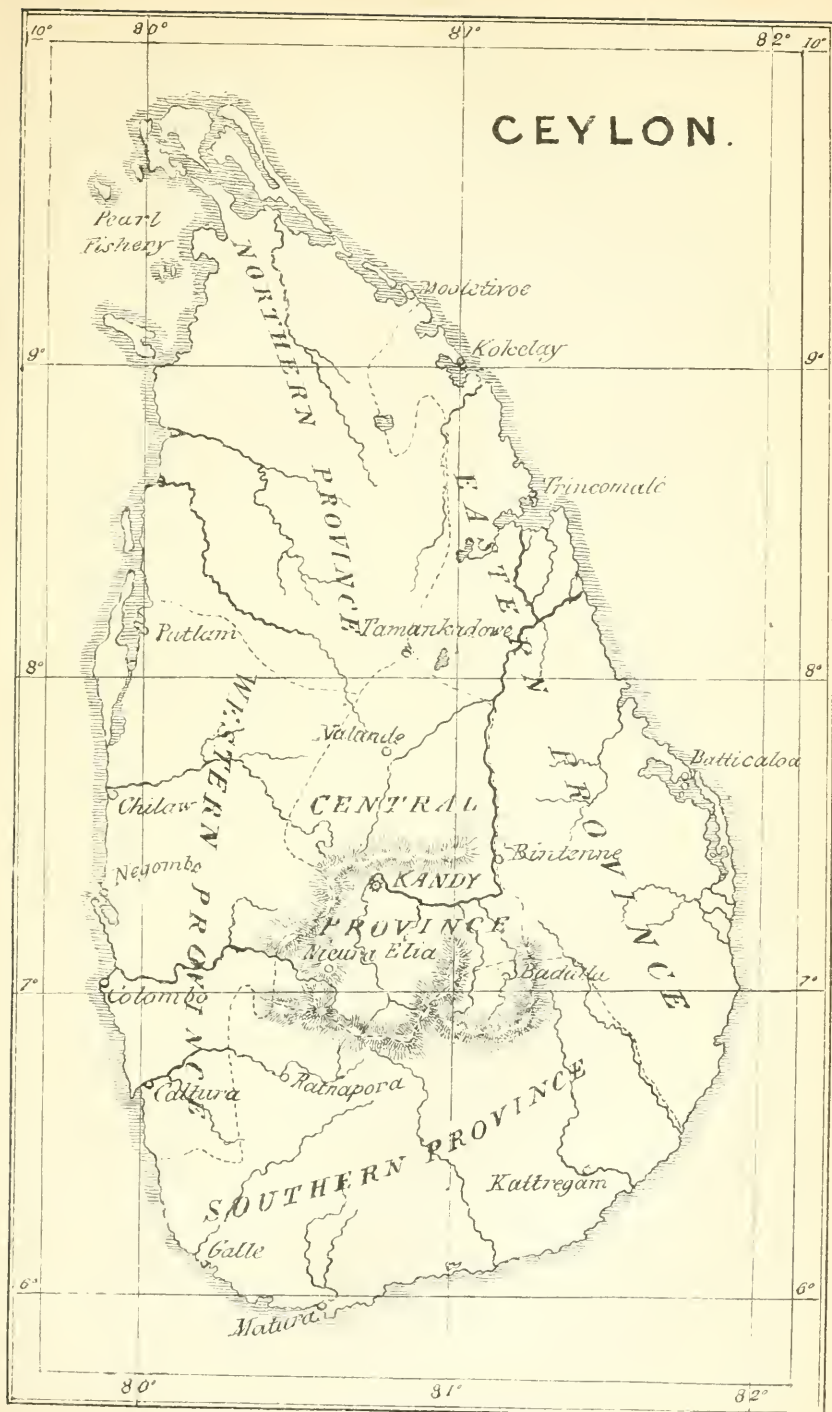
Considering the small size of the island of Ceylon, it cannot be necessary to submit to the loss of men which the unhealthy climate of some of the posts occasions. Indeed, the possibility of effecting a saving of life is often the only point requisite to be known, and this fact is sufficiently established by the preceding table. From the superior degree of health enjoyed by the few troops stationed at Niwera Elia, we may form an opinion of the benefit that would result from making this central position the principal station in the island, and the passes leading into the low country, and the plains and alluvial lands below, could be guarded by the black or native troops, whose constitutions are fitted for the climate. Indeed this practice has been partially adopted already ; “ a detachment of the Ceylon Regiment or of the Pioneer Corps having generally been quartered about 12 miles from this station, for the purpose of keeping open an extensive pass, connecting this part of the country with the Kandy district.”† Galle, alone, of all the other stations, can compete with Niwera Elia as to salubrity ; but its situation in the extreme south renders it less eligible as a military position to command the whole island.

It is almost unnecessary to follow this subject further ; but it may be desirable to give a short description of some of the mountain ranges in India, which have already been occupied as convalescent stations, as they afford many advantages for locating European troops conveniently with reference to important districts, so as to enable us to withdraw them from the neighbouring posts in the plains where they are now distributed, and are suffering much from sickness.‡

* Since these remarks were written, I am informed that (in 1844) this change has been introduced. One regiment of Europeans has been stationed at New-castle, and another at Maroon Town ; and a third West India regiment, 1,000 strong, has been raised to occupy the low country.

† Report, &c., 1841.

‡ App. C.



“The Neilgherries are an insulated range of mountains, extending between the Eastern and Western Ghauts, from west to east 34 miles, and from north to south 15 miles, and rise almost in the centre of the peninsula of India, to the height of 7,000 or 8,000 feet above the level of the sea.* They also elevate to the height of 2,500 feet above the ocean a vast plateau of table-land, containing some of the most fruitful districts in the Madras Presidency.† The climate of the Neilgherry Hills, which thus mark so strongly the features of the country, is more temperate than that of Great Britain; its whole range being also within the limits assigned by authorities as the most favourable to the European constitution.”

	Great Britain.	Neilgherries.
Mean temperature	56·3	56·7
Extreme ranges of temperature . .	90° & 11°	73° & 31°
Number of days without rain . .	220	265
“ “ cloudy	60	28
“ “ fair	160	237
Quantity of rain annually . . . .	..	47·78 inches.

The medical officers who have been stationed there, and all Europeans who have visited the hills, assure us that the change from the low countries produces a general restoration of mental and physical power, shown by a great and gradually increasing exhilaration of spirits, and in a most remarkable degree by increased capability of bearing fatigue, and of relishing and digesting food; and it is asserted by all the officers and families who have resided in the hills, that these beneficial effects have continued for a long period of time afterwards, extending in some instances to years.

Troops have never been stationed on the hills; but out of a small number of healthy Europeans residing there, only two casualties have occurred—one from sickness contracted in the country, and one from disease of long standing. The mortality among the large number of European children residing there does not exceed 40 per thousand, while in England, at the same ages, the mean mortality of both sexes is 50 per 1,000; in Belgium it is 65 per 1,000, and in Sweden it is 85 per 1,000.

The mortality among sick Europeans gives more striking results. Of 147 sick officers, treated between February, 1831 and 1834, only four

* Jackanairi is 5,659 feet, Jacktally 5,976 feet, Dimhutti 6,041 feet, Ootacamund 7,400 feet, and Dodapet 8,800 feet above the ocean level.

† These districts are—Bellary, embracing an area of 12,980 square miles; Cud-dapah, of 12,970 square miles; and Coimbatore, 8,280 square miles; these three districts possessing a population of two millions and a half of souls. Another, the Mysore territory, now held by British troops, situated between 11° and 15° north latitude, in length 210 miles, with an average breadth of 140 miles, forms part of the table-land, and attains an elevation of 2,000 to 2,500 feet, enclosed on two sides by the Eastern and Western Ghauts. At Bangalore, a plateau of 50 miles by 50, the surface is undulating, and nearly 3,000 feet above the sea. To the north, after passing Nandydroog, the country falls rapidly, and towards Seringapatam the surface has a sudden descent. Seva Ganga, the highest mountain in Mysore, is 4,600 feet above the sea. In so elevated a region there are no large rivers, but the small streams which descend from the plateau are numerous, and fertilize a great portion of the country.

died, being at the rate of 27 per 1,000, while in Great Britain the mortality is 15·7 per 1,000 of strength; and in the Foot Guards 24 per 1,000 every year. The mortality in the convalescent depôt that was formed on the hills, for the same period, (excluding three deaths which occurred immediately on arrival,) was 6 in 108, or 57 per 1,000, the same as that of the British troops in India, sick and well. We have thus entered into details, (remarks surgeon Baikie,) because we have no proper data on which to found our observations, though it is obvious that neither of these rates of mortality are fairly available for comparison. From data furnished by Inspector-general Brooks, (returns from 1826 to 1832,) we can estimate the probable mortality to which Europeans would be subject if stationed there. The deaths out of 60,954 living in India amounted to 3,486, or 57 per 1,000, in the following proportions:—

Fever	15·4	Pectoral Complaints . .	2·5
Liver	4·2	Bowel	18·4
Cholera	11·5	Miscellaneous , , . .	5·0

But from the fact that all endemic and epidemic diseases, and the four great scourges of the Europeans in the low country, fever, dysentery, cholera and disease of the liver, as a consequence of climate, are unknown, *we may safely predict that the number of deaths, among a body of troops stationed on these hills, would not be much above the average mortality among the troops in Great Britain;** and to learn the saving of life that might be effected by forming cantonments there, it is only necessary to examine the returns from neighbouring stations for 1842.

	Ratio of Deaths per 1,000 of Mean Strength.	Strength, 1842.
Neilgherries; no exact data, but supposed mortality	20·	..
Cananore	52·2	613
Bangalore	29·	2,167
Trichinopoly	40·4	420
Arnee and Arcot	56·7	1,551
Bellary	94·3	530

“The importance of the Neilgherry hills, as a central position, may be learned from the fact, that about 4,000 European and 10,000 native troops are distributed at Mangalore, Cananore, Palamcottah, Mercara, Trichinopoly, and Bangalore, the principal stations at their base. The distance from the Neilgherry hills to Calicut is 56 miles; to Cananore, 130; to Trichinopoly, 153; Bangalore, 176; and Madras, 393.

“The nature of the approaches to the hills affords the greatest facility of access. The Conoor, Goodooloor, and Segoor passes, one on the north, the others on the south and west, are open at all seasons and at all periods of the monsoon, and are practicable for wheel-carriages; and if the Koondah Ghaut were completed, a regiment could, in three or four marches, reach Arricole on the Bey pore River, whence it is navigable at all seasons to its embouchure at Calicut, the distance being a little more than 30 miles.”

* Letter from Surgeon Baikie, M.D., dated 1st May, 1840, to the Secretary to the Madras Government.

In the Bombay Presidency, a convalescent station has been formed at Malcimpett, on the Mahabaleshwur hills, which form a part of the western chain that stretches from Surat to Cape Comorin, though the hills are in a great measure insulated from the surrounding country. The site selected for the position of the sanatorium is in $17^{\circ} 56' N.$, and $73^{\circ} 30' E.$, 24 miles due east, and at an elevation of 4,500 feet from the ocean, on the seaward or westward slope of the mountain. It is thus freely exposed to the influence of the sea-breeze, while it is protected against the force of the easterly winds.

On the western side the hills rise precipitously from the Concan, over which they tower to the height of 4,000 feet; and to the eastward they are elevated 2,000 feet above the table-land of the Dekhan. The surface of these hills has an area of 50 or 60 miles, undulating, and in some parts hilly, which prevents the rains collecting on the tenacious clayey soil, formed by the decomposition of the laterite, or iron ore rock, of which they are composed. Their elevation is not sufficient to raise them above the influence of the monsoon, and the heavy rains that pour on the hills cause all the sick to abandon them.* They are again crowded during the hot season by invalids, and others from the neighbouring stations, who seek refuge from the burning heats of the plains, to gather fresh vigour from the temperate climate, and interest the mind with the scenery of the hills. There are several important stations for European troops at short distances from those hills.

On the lower ranges of the Himalayas, on the north and north-west frontier of the Bengal Presidency, stations for convalescents and regiments have been formed, taking advantage of their elevation above the sea, to secure the health of the troops required in that important quarter of our territories. Subhathoo, in north latitude $30^{\circ} 58' 12''$, and east longitude $76^{\circ} 58' 37''$, is now a British cantonment, romantically situated in the district of Bareilly, 4,456 feet above the ocean. One European regiment occupies the station.

Almora is built on a ridge of mountains, 5,400 feet above the level of the sea, in latitude $29^{\circ} 35'$ north, and longitude $79^{\circ} 40'$ east. The Almorah district is separated from Bareilly by the Kumaon hills, and, properly speaking, is only a subdivision of the Kumaon district. Two corps of artillery and two regiments of native infantry are stationed at Almora. At Simla (7,000 feet), there is only an irregular corps stationed. The Government have there founded a delightful station for

* Bombay annual fall of rain:—At Khandalla, 1,740 feet above the sea, and 30 miles inland, 168·75 inches of rain fell; while at Poonah, 40 miles further eastward, only 23·43 inches fell. The average fall at the sanatorium, on the Mahabaleshwur, 25 miles due east from the sea, and 4,500 feet above its level, is 239·80 inches annually.

AMOUNT OF RAIN during June, July, August, and September, 1842.

—	Sanatorium Mahabaleshwur.	Pamghurry.	Poona.	Bombay.
Monsoon, 1842 .	Inches. 289·37	Inches. 48·67	Inches. 14·77½	Inches. 87·33

The heavy rains will prevent the Mahabaleshwur being made the site of cantonments, but as a sanatorium it is invaluable.

their European invalids. "The portion of the Himalayas visible from Simla is a depressed continuation of the chain, extending from the emergence of the Sutlej, through the snow, to an abrupt limit bordering close upon the plain of the Punjab, near the debouchure of the Ravee. Few, if any, of the detached peaks visible rise above 20,000 feet, though the crest of Jumnotree may be seen from the highest point in Simla, which is a conical hill, named Jacko, 8,120 feet above the level of the sea."*

It may be seen from the stations already formed, that the executive authorities have not overlooked the importance of these elevated regions as the means of securing the health of the European stranger; and if others of the hill ranges, which cross our territories, be examined, many tracts would be discovered where the British troops might be located, above the heats and diseases of the plains, although there are also many places on the plains where our European soldiers might be advantageously located; and even with the convalescent stations already established at Maroon Town, at Jamaica; at Niuera Elia, in Ceylon; on the Neilgherry and Mahabaleshwur hills, in Southern India; and at Darjeling, Missourie, Landour, and Simla, on the southern slope of the Himalayas, the authorities have commenced only where they should have ended; for if such localities be valuable for restoring the injured health of Europeans, they must be still more so as the means of preserving it; and we hope the day is not far distant, when they may be made use of for such a purpose.

When selecting a district for the location of a force, it must not be forgotten that the climate or locality suitable for one race may be very unfavourable to the health of another.

The mountain regions, or even the table-lands of India, for example, though promising great advantages to the British troops, may prove highly prejudicial to the constitutions of the men who form our native regiments; for the natives of warm countries appear to suffer as much in a cold climate, as the races from the temperate parts of the earth do when dwelling in the plains of the tropics. Indeed, we are warned of the danger of removing those who have been born in the tropics to the frigid climates of our earth, by the mortality that has occurred among them by our doing so, as in the instance of the negro troops in garrison at Gibraltar, who lost 63 per 1,000 of their strength in 1817 and 1818, while the average ratio of deaths among this class of troops in the West Indies has only amounted to 40 per 1,000 annually. A similar increase in the rates of mortality took place also at Niuera Elia, in Ceylon, which "though healthy for Europeans, has been by no means so favourable to the health of the *black troops*, particularly the negroes, who suffered in a remarkable degree. Amongst 51 stationed in the vicinity, 15 deaths took place in 1835, whereof five were from affections of the lungs."* Where the force consists solely of Europeans, undivided attention can be given to the selection of stations most favourable to their health; but in India, where Europeans and native soldiers are usually brigaded in masses together, places must be sought for that will, in some degree, suit the constitutions of both descriptions of troops.

If an impression has been taken from the previous remarks that the

* Montgomery Martin, Hist. of British Colonies.

† Reports, 1841.

table-lands and mountain ranges are the only places within the tropics where healthy situations for British soldiers are to be found, no such impression is intended to be conveyed; indeed, the low rate of mortality occurring among the troops at Galle (23 per 1,000), and at Poonah, (23 per 1,000), and in several other parts, sufficiently establishes the fact, that there are many localities in the low countries of the tropics highly favourable to their health, though we are more likely to meet with stations suitable for the European constitution, at a considerable elevation above the sea; and now that it is known that marked differences as to salubrity exist even in neighbouring stations, and that a great saving of men and money may be effected by judiciously locating an army, the importance of instituting a search for such healthy positions will be acknowledged. It is only by correct statistical returns and reports that this invaluable information can be obtained.

Remarks on Tables of Marriages in the Irish Census Returns for 1841.

[Read before the Statistical Society of London, 16th June, 1845.]

SIR,

Dublin, January, 1845.

IN the last number of the Statistical Journal, I observed some very judicious remarks by Mr. Hallam, on the Irish census, relating chiefly to the average age at marriage.

May I beg to offer a few remarks on that subject generally, and some explanation of the tables referred to by Mr. Hallam. I wish to do so, because I think in the inferences drawn from the marriage question, somewhat too exclusive attention is usually paid to the "average age," and too little notice taken of those who remain unmarried, as well in the different stages of life, as of those who do not marry at all.

It was from a desire to exhibit this information in regard to Ireland, that the table at p. xlii of the Report, was drawn up, which is quite different in its object from that at p. lxxvi, though drawn from the same original material. The Table at p. xlii. is condensed from the unmarried columns of the Tables which give the civil state of the community, and exhibits, therefore, only the *unmarried portion*, but being divided into ages, it shows the gradual diminution in the proportion which unmarried persons bear to the people of their own age in each decade. This in some degree indicates the force with which the marrying principle (so to speak), has pressed on the people enumerated in Ireland, in 1841. It would be very satisfactory to compare this Table with similar Tables for other countries, or other periods; but, though there are many which give the *état civil* of the whole community, I am not in possession of any which divide it into ages. It would have been very desirable to have given this Table in single years, but the uncertainty of the ages at the decennial periods alluded to at p. xlv of the Report, has here also operated, so that this Table, like many others in the volume, must be taken rather as an indication than a realization, of the views which guided the Irish census.

The other Table alluded to by Mr. Hallam, viz., that at p. lxxvi, is the reverse of this. It deals only with the *married portion* of the community, and of them, only with those who have married within the last eleven years. In this Table also the periods are much longer than could

have been wished, and there is besides, between this Table, and that at p. xlii, a fertile source of anomaly, arising from the voluntary nature of the returns, which especially affects the average age at marriage. It arises from the circumstance of persons returning correctly the number of years they have been married, (probably to account for their children,) but diminishing their actual age, and this diminution was peculiarly observed with married women. They clung with especial tenacity to the age of 30, (it was remarkable that unmarried women were not so reluctant to pass that age). Now if we suppose a woman to have married in 1830, at the age of 23, she would be 34 in 1841, and would have been married 11 years. This latter fact she would return correctly, but would probably call herself only 30 years of age; hence her marriage would appear to have taken place at 19, and she would accordingly be placed in the Table at p. lxxvi, in the class 17--20 years of age; while in the Table at p. xlii, she would be placed as being now between 26 and 35 years of age. Hence the *age at marriage* deduced from Table p. lxxvi, will appear earlier than it is: so indeed will the *present age*, from Table p. xlii, but they will frequently fall, as in the instance given, on different sides of a decimal division. Some such cause has probably increased the numbers in the first period of the annexed Table, which is condensed from the summary of p. lxxvi; still the numbers in the higher ages, indicate a certain retardation in the average age at which marriage is contracted.

PERIODS.	Annual Average Number of Marriages.	Annual Average Number of Marriages of <i>Males</i> 20 Years of Age, and under.	Proportion per cent. which the numbers in the preceding Column bear to the Annual average Number of Marriages in each period.	Annual Average Number of Marriages of <i>Females</i> , 20 Years of Age, and under.	Proportion per Cent. which the Numbers in the preceding Column bear to the annual Average Number of Marriages in each period.
1830—1832	46,561	5,146	11.	16,242	34.8
1833—1835	50,525	4,350	8.6	14,708	29.
1836—1838	51,236	3,377	6.6	12,409	24.
1839—1840	50,440	2,822	5.5	11,617	23.

The Commissioners Report accordingly infers, “from the Tables of marriage in the Appendix, p. lxxvi, it would seem fair to conclude that marriage is now entered upon somewhat later than in the earlier years of the decade.”

The results however may be influenced by other causes, and the Report accordingly speaks with doubt, even of the average age at which the married have contracted matrimony.

I now wish to explain, why it appears to me that the average age ought not to be considered alone. One obvious reason indeed is, that the same average might be produced by very different numbers. But let us suppose, for example, two families, each consisting of four daughters. Of the first family, one daughter marries at 18, one at 20, and two remain unmarried. Of the second family, two marry at 18, and two at 20. The average age of the married persons at marriage, would be 19 in both families, but we should not be justified in saying of the first, that it was given to early marriages, merely because those

who have married, have married young. Their tendency to marriage would be very different, and this tendency is what we are in search of. Average age is but one of its elements, and to compare it at different times, we require not that age alone, nor even the extent to which it is retarded, but the part of the scale of age. in which the retardation takes place, and the changes in the proportion of persons married and unmarried, at each age, as well as of those who remain unmarried altogether.

Hence the necessity for some such Table as that at p. xlii, and if the community were stationary as to number and condition, so that the ages of the existing community could be substituted for advancing ages, and if it could be divided into single years, that Table would give correctly, not only the average age, but all the other circumstances by which tendency is indicated. We should then be able to compute, and to compare at different times, in different circumstances, and different countries, the points which seem to me the real desiderata in the marriage question : viz., *the probability whether any person at birth will marry*, and *the probable age at which he will marry*, for both of which we require the unmarried number ; the average age bearing, in fact, somewhat the same relation to the probable age, which the average age at death does to the expectancy of life :—and if marriage were as certain as death, (which happily for old bachelors, it is not,) the calculation would be precisely the same ; or, if the average age at marriage were nearly constant, the Table at p. xlii, would be at once a curious record of the state of society as to marrying, *i.e.*, the degree in which the marrying principle has pressed, or been opposed, for many years past ; on the same principle as that by which the encouragement given to education for many years past, is deduced at p. xxxiv, from the present state of the community as to reading and writing, viz., by assuming that marriages take place within some certain period of life, and that as few people marry after the marrying age, as there are who learn to read and write after the educational age, and then carrying back each class of the community to the years when they were respectively within that age : of this, however, the rapid diminution which the Tables show in the number at high ages, shows at once the impracticability.

But further, if the tendency Table were followed out, (for which the original returns of the census afford material.) into the different classes of society, and their occupations and circumstances of life, we should probably find it a distinct measure of condition. The annexed Table, for example, which is merely general, shows that where the deaths are most numerous, the people most ignorant, and their house accommodation the worst, there also marriages are most numerous. This Table has no other classification than locality, if it could be further classified by occupations, age and other circumstances, and all these exhibited for different periods, say every 10 years, beginning with the present century, how curiously would it compare with social and political changes during the same period.

	Rural Population.				Civic Population.			
	Ulster.	Leinster.	Munster.	Connaught.	Ulster.	Leinster.	Munster.	Connaught.
Proportion which the number of Marriages, from 1830 to 1840, bear to the population of 1841*	1 to 19	1 to 17·8	1 to 16·3	1 to 16·3	1 to 15·7	1 to 14·2	1 to 14·4	1 to 14·5
Proportion between the number of Marriages, from 1832 to 1840, and the number of Births for the same period†	1 to 5·7	1 to 5·1	1 to 5·1	1 to 5·6	1 to 4·5	1 to 3·8	1 to 4·2	1 to 4·4
Proportion between the number of Marriages, from 1830 to 1840, and the number of Births resulting from those Marriages*	1 to 2·24	1 to 2·22	1 to 2·22	1 to 2·26	1 to 2·02	1 to 1·90	1 to 2·03	1 to 2·05
Proportion of Births to the Population	1 to 31	1 to 30	1 to 30	1 to 28	1 to 34	1 to 31	1 to 30	1 to 29
Proportion of Deaths to the Population	1 to 63·9	1 to 60·4	1 to 60	1 to 59	1 to 40·9	1 to 37·3	1 to 35·9	1 to 36·4
Per Cent. of the Population unable to read or write . . .	42	47	64	73	24·8	31	42·5	49
Per Cent. of the Population living in the 4th, or lowest class of house accommodation	35·3	34	54	53·6	18·8	41	40	44

* These proportions have been calculated from the Tables of Marriages at pp. 460—487.

† These proportions have been calculated from the Tables of Married Persons at pp. lxxvi.—lxxix. Only the number of marriages from 1832 to 1840 have been taken, that the periods might correspond with the periods given in the Table of Births at p. 453.

Here, perhaps, I may notice another part of Mr. Hallam's paper, as it is connected with this subject, where he disputes, "the well-known law that the most marrying race have the lowest cypher of fecundity," and adds, "we cannot possibly admit that such a law is well known, or see the slightest ground for believing that it is a law of nature at all." The law is explained and numerically supported by Mr. Gregg in his Social Statistics of the Netherlands, page 8, (published in 1835), and I must say seems to be based in nature. Every one will admit, that all people are not endowed with the same power of reproduction, any more than they are with that of self-preservation, the other great instinct of nature; whether from health, strength, condition, or circumstances of life, all of which are endlessly variable. There is of course an average, but all are not alike. Now if we suppose 1,000 persons of each sex, the 100 of each who are most likely to marry, will probably be those best fitted by nature or circumstances for reproduction, and they will have the largest families. There will be individual exceptions of course, but they confirm the rule, they do not defeat it. The second 100 will be less fitted, the third less still, and so on. In these circumstances the average number to a family must diminish as the number of marriages increases, that is, the average of the first 100, will be larger than the average of the first 200, and so on. I am aware there can be no proof, that the most productive will have the strongest marriage tendency, but the result will be the same, if merely stated, that—as all marriages are not equally productive, the greater the number of marriages is, the less their average produce will probably be. Even this, of course, is only a probability; but I think it is based in nature, and argues no "curse of barrenness," as Mr. Hallam supposes. I wish I could produce some numerical evidence, and I think the original return

of the Irish census would furnish such. The above table, indeed bears out the inference, except in the case of Connaught, where we know the marriage returns were the most imperfect. This is among the many things for which we may look to the admirable accumulations of facts in the annual reports of the English Registrar-general.

It must also be remembered that there are many married couples who do not live together. Such, for instance, as domestic servants. On the 6th June, 1841, there were in Ireland no less than 23,622 males and 39,197 females so situated. These parties produced, in the ten years, only 28,638 children, not one-fourth the number produced by parties more favourably circumstanced.

This class exists in every community, and it obviously tends to reduce the average number of children per marriage.

I have little else to add;—Mr. Hallam says, he “can attach no meaning to births averaging 1 to 3, and after much consideration, can only presume it to be a misprint.” It is a misprint, and is stated in the errata to be so. It ought to be 1 to 30·3.

To one other paragraph I may advert. The Commissioners stating the incompleteness of the returns made to them, say, among others, that the *deaths* are one-fourth in defect. Mr. Hallam understands this to mean 25 per cent. of error in the deductions drawn from them. This by no means follows. It is only that the base is less broad; as when Mr. Rickman, in the preface to the population returns of 1831, argues on tables of mortality, from the ages of 10,530,671 persons, out of the whole population of 11,978,875; it was only as if the population had consisted of the former number. The defect did not involve an error, provided the returns he did get were correct.

I fear I have trespassed on your time. My object was to show wherein the table at p. xlii of the Appendix to the Report of the Irish Census Commissioners differed from that at p. lxxvi, and that the average age at which the married people have contracted matrimony, which Mr. Hallam has deduced from the latter, is not alone a sufficient measure of the objects which the marriage question is calculated to afford. These deductions are of great interest; they are, among those which may yet be, in some degree, deduced, even from the published Tables of the Census; and I rejoice greatly to see so distinguished and able a statist as Mr. Hallam bestow even a passing thought upon them. The original papers of the Census afford much more information. They are not now in a state which admits of easy reference, but may, perhaps, be so at some future time, if they become the province of some special department.

The three subjects which, in connexion with marriages, the Irish Census Commissioners have dwelt upon, are thus described:—“1st. A division of the whole community into three heads—unmarried, married, and widowed. 2nd. The ages of the married portion of the community at the period of marriage; and 3rd. A tolerably correct account of the number of children of each sex born to those marriages.” This last is a very curious, and not unimportant, subject, much too large to be entered upon at the close of a communication. I shall gladly return to it at a future time, if leisure be afforded me, as I think the phenomena of sex may be found to arrange themselves around laws of no difficult deduction. Meantime, I would especially beg attention to that para-

graph of the Report, in which the Commissioners remark that, "difference of age has a different value at different periods of life; in other words, that the *sum* as well as the *difference* of the ages of parents ought to enter into all calculations on the probabilities of sex of children," because the latter alone has hitherto been attended to.

I am, &c.,

Joseph Fletcher, Esq.

THOMAS A. LARCOM.

Reply to the preceding Remarks.

[Read before the Statistical Society of London, 16th June, 1845.]

MY DEAR SIR,

24, *Wilton Crescent*, June 5, 1845.

I HAVE been favoured by you with a sight of Captain Larcom's remarks on a paper communicated by me to the Statistical Society on the 15th of April, 1844, wherein I adverted to some errors, as they appeared to me, in the Report of the Commissioners appointed to take the Census of Ireland in 1841. If these remarks by Captain Larcom could have been read at the last meeting of the Society, I might perhaps have contented myself with a verbal reply. But as that was not the case, and as it will not be in my power to be present on the 16th instant, I must request you to lay my short observations before the meeting on that evening.

The Table in p. xlii is said by Captain Larcom to exhibit only the unmarried portion, and to show the gradual diminution in the proportion which unmarried persons bear to the people of their own age in each decennial period. This I never understood otherwise. But the other table, that in p. lxxvi, he proceeds to say, is the reverse of this, and dealt only with married persons. Surely, however, this comes to the same thing. If, out of 100 persons, at a given age, 93 were unmarried, it follows that 7 are married; and if we begin at the other end, and find that 41·3 are married, it equally follows that but 58·7, instead of 93, are unmarried. In both tables the period is much the same, being from 17 to 25 in the former, and under 25 in the latter; the only difference being as to marriages under 17, which, among males, cannot be very numerous. I conceive that the unmarried persons, in p. xlii, do not include widowers. This seems to follow from Captain Larcom's reasoning on *marriage tendencies*.

The "fertile source of anomaly, arising from the voluntary nature of the returns" to which Captain Larcom adverts, may very probably tend to explain the discrepancy, but does not remove it. The observations, therefore, in pp. 3 and 4 of his paper, may be well founded without affecting my own.

The vindication of Captain Larcom's assertion of a "well-known law, that the most marrying race have the lowest cypher of fecundity" is ingenious; but I cannot think it satisfactory. The "most marrying race" will surely be that in which marriages take place earliest; in which women do not lose, in this sense, those years of life when nature particularly fits them for reproduction. For, in all questions of this kind, we must look to the age of female marriages far more than to that of males. Now, if habits of prudence, in both sexes, extend the average period of matrimony to 27 or 28 years of age in the woman, rather than 23 or 24, it seems a paradox to suppose that the fecundity of the older brides will exceed that of the younger. And this, on the great scale, must

affect the population far more than what Captain Larcom supposes, that, in the most marrying communities, many will enter into matrimony who are not much fitted for reproduction. The marriages of elderly people, on the contrary, are likely to be most frequent where the sexual passion has been most restrained in youth, and prudential habits have been formed. Nor does experience confirm the theory, which Captain Larcom has derived from some Belgian publication. I have not looked at that; but it is certainly an admitted fact, that the ratio of marriages to the population is higher in the United States than in Europe. But the "cypher of fecundity" there, if I remember right, is above 6; while, if the inverse ratio were true, it ought to be lower than in any European state; or not much more perhaps than 3; a supposition, independently of direct evidence to the contrary, incompatible with the rapid progress of American population.

It is unnecessary to add that I am obliged to Captain Larcom for the courtesy of his expressions, and hope that we shall reap much benefit from the investigation which he promises to pursue.

I remain, my dear Sir,

Very faithfully, yours,

Joseph Fletcher, Esq.

HENRY HALLAM.

Adaptation of Official Returns of Railway Traffic to the general purposes of Statistical Inquiry. By W. A. GRAHAM, Esq., F.S.S.

[Read before the Statistical Society of London, 21st April, 1845.]

It has long been my opinion that a series of tables, carefully and systematically compiled from returns furnished by the Government, from the shipping and landing entries of docks and harbours, and from other accessible sources, might, under the auspices of this Society, render important service to the public by throwing light upon the condition and employment of the population of different places, and upon the state and variation of local trade. My opinion of the value of such a series of tables was confirmed by the suggestion contained in a passage which occurs in the paper on Railway Statistics contributed by G. R. Porter, Esq., and read before the Society on the 15th April last. While regretting the insufficiency of the returns made by the Railway Companies to the Board of Trade, for the deduction of satisfactory results in reference to the average distances travelled by the passengers on the various lines, Mr. Porter observes:—"It may hereafter be possible, by explanation, to induce the companies so to keep their accounts as to make this return with accuracy, so that data may be obtained whereby to compare one year with another, and one part of the kingdom with another, in regard to this very significant indication of the national progress." I cannot more concisely express the object with which I have constructed the tables I now submit to the Society, than by borrowing the words of the above quotation: "to compare one year with another, and one part of the kingdom with another," and I have availed myself of the official railway returns for the illustration of my views, on account of the facilities afforded for consulting them in one collected mass, and the superior importance conferred upon them by the increasing prevalence of the railway system, which gives promise shortly to pervade every portion of the kingdom. The basis of the argument for the utility of these tables as applied to general statistical purposes is, that all the

surplus* produce of labour must be conveyed to its market or locality of consumption. Common roads will soon be superseded, except for very short distances, by railways as the means of such conveyance, and there can be no doubt that a well-digested system of tabulating the traffic of so large a portion of the produce of the land and labour as must pass through the hands of railway companies, would furnish the most important information on the state and variation of local trade throughout the kingdom. The members of this Society need not to be reminded of the value of such information in the hands of the legislator and the skilful statiet; nor is it to be apprehended, on the other hand, that they will attach to it more than its due value. Many circumstances will make it necessary to correct and modify the information thus obtained by facts derived from other sources; and the greater the number of those sources we have opportunities of consulting, the more nearly we shall approximate, by comparing them with the railway tables, to a clear view of the condition of any particular locality. Amongst the sources here alluded to, one of the most obviously desirable is an account of the traffic on canals, and although the obstacles in the way of obtaining it are confessedly great, it is to be hoped that, in proportion as the important influence of statistical inquiry on the well-being of the community becomes appreciated, an account may be obtained of so much of the canal traffic, pertaining to the transport of large quantities of goods of one kind, as would furnish materials for tabulation on a system similar to that which is here recommended for the official returns of railways. Notwithstanding, however, that a comparison of railway and canal traffic may be most important in reference to the whole trade of a particular place, they will probably, at a future time, become, in some measure, independent of each other in reference to certain articles of commerce of which *large quantities* are conveyed, and which could be tabulated in some such form as that shown in the accompanying tables. Live stock, for instance, forms no part of canal traffic, and it is probable that the transport of woven manufactures, the value of which bears a large proportion to their weight, may ultimately be entirely transferred from the canals to the railways, the latter mode of conveyance complying with the desirable and often necessary condition of speedy delivery. The canals, on the other hand, will retain a large portion of the traffic in weighty and cumbrous goods, of which the value bears so small a proportion to their weight and bulk, that conveyance by railway would materially affect their price. The trader will also find his account in saving the difference of rates by transmitting through the canal companies many other articles of which the speedy delivery is not a material desideratum. Tables compiled from the shipping and landing entries of docks and harbours would also, when compared with the railway tables, throw light on the trade of the seaport towns, and that of the places with which they are connected by railway.

Meanwhile, the absence of tabulated matter derived from such sources has not discouraged me from suggesting the commencement of a system by the conversion of the materials more conveniently within our reach. It is true that, for some purposes, the value of the tables will be but small, so long as they are uncorroborated by other evidence; but even

* The term "surplus" must here be taken as the excess of produce beyond its consumption in or very near the locality of production.

though we were unable to deduce any satisfactory result from the actual numbers exhibited by the tables, their variations would indicate, in a very striking manner, the operation of causes, the nature of which we should, by these indications, be led more particularly to investigate. At the same time, our knowledge of the present imperfect state of the returns would put us on our guard against drawing hasty conclusions. Notwithstanding, however, the imperfect state of the materials, it is hoped that a cursory examination of the tables compiled from them will be sufficient to show that they may be made available for the purposes suggested. It is also anticipated that an examination of these tables may be serviceable in assisting to form an estimate, by analogy of circumstances, of the probable traffic of a projected line, and of its effect upon the places on or near its course. It is presumed that a convenient form of reference to the experience of the past will become every day of greater value for modifying the rules hitherto adopted in making estimates for new lines, and that as the railway system becomes extended over the whole country, the tables will exhibit very decidedly, when carried over a series of years, the fluctuations caused by the stimulus given to local trade, and by the counteraction of new competing lines.*

The plan here recommended, and which it is attempted to illustrate by the accompanying tables, is such an analysis of the returns as will furnish, in addition to the table of receipts and the passenger table, materials for the construction of a separate table for any article of consumption conveyed in large quantities. I have been enabled to extract materials for the tables here described, and I have in many instances supplied their deficiencies by calculating the results in a manner which will be explained in the description.

No. 1 is a table of the gross receipts of 66 railways. Of this number 49 are on four half-yearly returns ending 30th June, 1843; 5 are on three returns; and the remaining 12 on two returns. The table contains seven columns, viz., No. 1, the name of the railway; No. 2, the numbers of the returns; Nos. 3 and 4, the per centage proportions of passenger traffic and goods traffic; Nos. 5 and 6, the gross receipts of passenger and goods traffic; and No. 7, the total gross receipts. The value of the columns of proportions, independently of their fitness to convey a ready and correct idea of the commercial character of a railway, consists in their indication of considerable changes. Wherever such changes in the proportions meet the eye, the columns of actual receipts may be consulted for information as to whether the change of proportions is due to an increase or decrease of passenger or goods traffic, to an increase of the one and a decrease of the other, or to an increase or decrease of both in different proportions. Wherever the proportions appear to be stationary, the column of totals will show the increase or decrease, if any, of the whole. These returns are, in fact, the third, fourth, fifth, and sixth returns made to the Board of Trade under the powers conferred by Lord Seymour's Act, but the first two (1st July to 31st December, 1840, and 1st January to 30th June, 1841) are so imperfect, that I find them quite unmanageable for the purpose of tabulation. The figures 1, 2, 3, 4, in column No. 2, indicate the first, second, third, and fourth returns, and as their use is to avoid a repetition of dates, the blank spaces opposite to the corresponding number of the return point out those lines of which the

* A new line may compete with an old one for part of the traffic of their common terminus, by opening new markets for its produce, although in an opposite direction.

returns commence only at the second or third half-year, dating from the 1st July, 1841, as a commencement for the tables. In a few instances of defective returns, the sums of the fifth and sixth columns have not been carried out to the column of totals. The receipts for horses and carriages and passengers' luggage have been included in the receipts for passengers, as it is considered that they make one of the expectations of a passenger traffic, and are generally proportional to the quantity of first-class passenger traffic. Table No. 2 is intended to show the number of passengers of each class conveyed on railways, the average distance, and the rate of fare per mile, the figures indicating the dates of the returns being applied in the same manner throughout all the tables as in No. 1. Table No. 3 is of the same form as No. 2, showing the numbers, average distances, and rates of charge per mile for horses and carriages, and in like manner, Tables Nos. 4, 5, 6, and 7, show the results in the transport of coals, cattle, sheep, and pigs. The passenger table includes 60 railways. In this table, as well as in the succeeding numbers, the average distances have been calculated from the mileage and the numbers conveyed. In some instances, however, the mileage is not supplied in the returns, but in those cases where the rates and separate receipts are given, they have been taken as the elements of the calculation; the distances so calculated are noted in the tables, but as the rates are in many cases given to several places of decimals, it was considered that the results would sufficiently approximate to the truth for the purposes of the table.

In two or three cases only, where the numbers carried on a railway made it too important to be excluded from the tables, a rate has been *assumed* for calculating the distances, the rates and mileage not being furnished in the returns. Those distances are accordingly noted in the tables to be taken as approximations, answering the purpose of indices of variation.

An examination of the average distances of the passenger table shows that, in general, the distances of first class passengers are longer than those of the second, and the second longer than those of the third. The most remarkable exception to this rule appears in the distances travelled by third-class passengers on the Grand Junction. During the two halves of the year ending 30th June, 1843, while the first class travelled 59·41 and 59·58 miles, and the second class 37·79 and 36·35, the distances travelled by the third class were 73·55 and 76·68 miles, or nearly the whole length of the line. The line is virtually 97·5 miles in length, although it terminates at the junction with the Liverpool and Manchester line at Newton. The same kind of exception appears on the South-Western, the first class varying, over two years, from 38·21 to 42·35, the second from 26·08 to 29·07, while the third class ranges from 55·18 to 59·24. On the Great Western the third class distances are very nearly equal to the first class, and would probably exceed them on the main line between London and Bristol. The returns, however, include the traffic of the Cheltenham and Great Western Union, and of the Bristol and Exeter lines. These exceptions to the general law indicate the existence of a regular current of third class traffic between London and the ports of Liverpool, Bristol, Southampton, and Portsmouth, the greater portion of which probably consists of seamen, soldiers, and labourers. This hypothesis appears to be corroborated by the long distances of third-class passengers on the London and Birmingham line. The Board of Trade Report, February 5th, 1842, contains a

table in which the average distance travelled by third-class passengers on this line (as calculated from the return ending 1st July, 1841), is $55\frac{1}{2}$ miles. In my tables it ranges from 60·73 to 64·31. With the exception of this and the North Midland, which falls off from 16 miles to 12 or 13, the average distances given for third class on 11 railways do not vary considerably from those of my tables.

The line on which the greatest number of passengers were carried during the period of the four returns was the Great Western. The London and Birmingham, however, surpassed it in the mileage of the first and third classes, and was not far inferior to it in that of the second.

The following is a statement of the per centage variation in the numbers of passengers of each class, and in the money receipts of the Great Western and London and Birmingham lines for the second year as compared with the first year of the tables :—

	First Class.		Second Class.		Third Class.	
	Increase.	Decrease.	Increase.	Decrease.	Increase.	Decrease.
Great Western.						
Passengers . . .	..	2·5	..	4·5	39	..
Money . . .	1·33	..	2·5	..	26	..
London and Birmingham.						
Passengers . . .	..	6·33	..	2·0	15	..
Money . . .	..	9·0	..	0·08	18	..

The increase in the number of third-class passengers on the South-Western line during the second year of the tables, as compared with the first, is 49 per cent.

Another remarkable feature exhibited by the table is the large quantity of third class short traffic on the Sheffield and Manchester, and the Manchester and Birmingham, and still greater numbers are shown on the Manchester and Leeds, being, from 747,000 persons during the first year, to 794,000 during the second year, carried about 11 miles; the second class of this line also shows about one-third of this number carried double the distance. These examples are strong indications of the commercial activity of the population in the neighbourhood of the manufacturing towns. The columns of rates in these tables will probably serve no other purpose for the present than to convey a general idea of the cost of travelling and conveying goods in different parts of the country, but it is also intended that they should be consulted, after a period of some years, in connection with the variations in the numbers and quantities conveyed, in estimating the extent to which these latter may have been affected by the variations in the former. The distances shown in the tables of horses and carriages are remarkable for their regularity, the former being, in most cases, somewhat shorter than the latter, and the ratio of each to the whole length of the several lines being greater than that of any other species of traffic. The distance for horses was, during the two years, upwards of 80 miles on the London and Birmingham, and 62 to 64 miles on the Great Western, the former line carrying the greater number: the Great Western, however, carried a greater number of carriages.

The returns of the Pontop and South Shields Railway commence at

No. 3, and show a greater mileage in the conveyance of coals than any other railway. The number of tons carried during the period from 5th July, 1842, to 2nd July, 1843, was 602,251, an average distance of nearly 15 miles, which is equal to nearly 9,000,000 tons carried one mile. The Durham and Sunderland Railway carried, during the first year of the returns, 387,705 tons, and during the second year, 331,282 tons a distance of 12 miles. On the Newcastle and Carlisle line, 157,591 tons were carried during the first year an average distance of 12·85 miles, and during the second year, 139,336 tons were carried an average distance of 16·68 miles; the falling off in the quantity was more than compensated by the greater average distance of the second year, the total mileage of the second year exceeding that of the first by 16 per cent. The quantity here given for each year is the sum of five different quantities carried different average distances, and in addition to these, the company carried 39,856 chaldrons the first year, and 33,879 chaldrons the second year a distance of about $6\frac{1}{2}$ miles, and from 60,000 to 63,000 chaldrons the short distance of 155 yards. The returns of the Newcastle and Carlisle Railway are admirable specimens of careful analysis, and do great credit to the officers of that Company. On the St. Helen's and Runcorn Gap Railway 158,510 tons were carried the first year, and 191,824 tons during the second, a distance of 8 miles; and 20,954 tons, and 29,836 tons were carried a distance of $2\frac{1}{2}$ miles during the first and second years respectively. The Great North of England shows a traffic of from 84,000 to 85,000 tons per annum carried about 26 miles, and amongst the shorter distances, the Manchester, Bolton, and Bury Railway shows a traffic of about 50,000 tons, and the Maryport and Carlisle, from 60,000 to 70,000 tons per annum, the average distance on each line being about $6\frac{1}{2}$ miles. The coals on the latter line are principally for shipment at Maryport.

The London and Birmingham is the chief line for the conveyance of cattle, upwards of 20,000 having been carried an average distance of nearly 70 miles during the second year of the returns. Considerable numbers are also carried on the Midland Counties, a great feeder of the London and Birmingham. During the first year of the returns, the numbers carried on both these lines were very nearly the same; but during the second year, while the numbers on the London and Birmingham increased considerably, those on the Midland Counties fell off to less than one-half. Cattle are also carried in considerable numbers on the Great North of England, Great Western, and Grand Junction. It is to be regretted that the returns of the North Midland are so imperfect in the account of live stock, that they could not be used for the tables. The number of sheep carried on the Great Western during the first year of the returns was 75,970, and during the second 118,641, over an average distance of about 46 miles. On the London and Birmingham, 91,447 were carried during the first year, and 109,889 during the second year, an average distance of about 60 miles; but the average distance of the numbers carried during the half-year corresponding to the first return, appears to have been upwards of 90 miles, or $\frac{9}{11}$ of the whole length of the line. The numbers conveyed on the York and North Midland during the period of the two returns, from 1st July, 1842, to 30th June, 1843, were 104,403, a distance of about 16 miles. This number is much greater than that shown by any railway joining it. The Manchester and Leeds shows about 50,000 the first year, and 30,000 the

second. The Newcastle and Carlisle line shows a steady traffic in sheep during the two years of the returns, the numbers being about 38,000 the first year, and nearly 40,000 the second year of the returns, carried about 40 miles. The South-Western shows a sheep traffic of about 36,000 the first year, and 32,000 the second year, the average distance increasing from 44 to 48 miles.

The lines which are most conspicuous for the transport of pigs are the Grand Junction, the Liverpool and Manchester, and the Manchester and Leeds Railways; the numbers and average distances on these lines clearly indicating the current of distribution, throughout the manufacturing districts, of the great numbers of Irish pigs, shipped principally at Belfast for the port of Liverpool. Many of these are, no doubt, consumed by the population of Liverpool; but we may infer, from the appearance of the tables, that Manchester, Leeds, and many places on the track of the Leeds and Manchester Railway, are the localities of a large consumption,—that a considerable portion is distributed in a more southerly direction towards Stafford, Derby, Nottingham, and other places in the midland counties, and that large numbers find their way to Birmingham.*

During the first year of these returns, 81,796 pigs, and during the second, 129,441, were conveyed over a great portion of the Grand Junction line. No rates are given in the returns of live stock traffic on that line; but even assuming the highest rate in the table, $\frac{1}{2}d.$ per mile, the average distances during the two years of the returns would appear to be from 50 to upwards of 60 miles. These long average distances, nearly three-fourths of the whole length of the line, would seem to be sufficient warrant for the inference that considerable numbers of the pigs travel to the Birmingham terminus of the line. The numbers conveyed on the Great Western are considerable, and appear to have increased from about 36,000 during the first year, to upwards of 49,000 during the second, the average distances being nearly the same, viz., 47 to 49 miles. The number of pigs conveyed on the London and Birmingham, during the first year of the returns, was only 8,437. There appears, however, an extraordinary increase in the numbers conveyed on that railway during the period of the fourth return, the number being 17,119, while the number for the corresponding half of the preceding year (return No. 2), was only 6,363; the average distance in both cases being, within a very small fraction, the same, viz., No. 2, 57·34; No. 4, 57·43.

Rates.—The average rates of 22 English railways for first-class passengers, on five half-yearly returns, commencing 1st January, 1841, were 2·772*d.*, 2·71*d.*, 2·69*d.*, 2·655*d.*, 2·708*d.* On the last return, 12 were above the average, and 10 below it. The highest charge, 3·47*d.*, was made by the Great North of England, and the lowest, 1·87*d.*, by the Durham Junction.

The average rates on the same 22 lines for second-class passengers, on

* The number of pigs conveyed during three successive years, commencing 1st July, 1840, was:—on the

Liverpool and Manchester.		Grand Junction.	
First year . . .	75,081	First year . . .	66,694
Second year . . .	80,854	Second year . . .	81,796
Third year . . .	83,564	Third year . . .	129,441

I am indebted to Mr. Withers, the treasurer of the Liverpool Dock Estate, for the information that the number of Irish pigs imported into Liverpool in 1844, was 243,653.

the same five returns, were 1·915*d.*, 1·955*d.*, 1·876*d.*, 1·902*d.*, 1·957*d.* On the last return, 10 were above the average, and 12 below it. The highest rate, 2·7*d.*, was charged by the Eastern Counties, and the lowest, 1·5*d.*, by the Whitby and Pickering.

The average rates for third-class passengers on 16 of the same 22 railways, on the same five returns, were 1·141*d.*, 1·185*d.*, 1·247*d.*, 1·204*d.*, 1·251*d.* On the last return, 5 were above the average, and 11 below it; the highest rate, 1·6*d.*, was made by the Great North of England, and the lowest, 0·9*d.*, by the London and Croydon and the Lancaster and Preston. The Chester and Birkenhead had a *fourth* class, at the rate 0·83*d.*, which was discontinued during the period of the second return of the tables.

As there is but slight variation in the rates for horses and carriages, live stock and coals, over the four returns, an average is taken for the whole period. The average rate for horses, taken on 21 English railways, is 4·14*d.* Of these, 13 are above the average, and 8 below it. The highest charges were made by the Preston and Wyre and the Whitby and Pickering Companies, viz., 5·5*d.* and 5*d.* respectively. The numbers conveyed on these lines were, however, very small. The lowest rate, 2*d.*, was charged by the York and North Midland.

The average rate for carriages taken on the same 21 railways is 7·36*d.* Of these, 10 are above the average, and 11 below it. The highest charge, 10·5*d.*, was made by the Lancaster and Preston, and the lowest, 4*d.*, by the York and North Midland. The Chester and Birkenhead, not included in the average, charged 12*d.* on returns 1 and 2; but had reduced the rate to 8*d.* on 3 and 4. This reduction was not followed by an increase of traffic.

The average rate for coals is 1·83*d.* per ton per mile, taken on 22 English railways.* Of these, 11 are above the average, and 11 below it. The highest charge, 4*d.*, was made by the Croydon Company, and the lowest, 1*d.*, by the North Union. The Canterbury and Whitstable, not included in the average, charged 9*d.* on returns, Nos. 1, 2, and 3; but reduced the rate to 6*d.* on No. 4.

The average rate for the conveyance of cattle on 9 English railways is 1·53*d.* Of these, 3 are above the average, and 6 below it. The highest rate, 2*d.*, was charged by the Birmingham and Gloucester, and the lowest, 0·9*d.*, by the Newcastle and Carlisle.

The average rate for sheep on 9 English railways is 0·3*d.* Of these, 5 are above, and 4 below the average. The highest rate, 0·4*d.*, was charged by the Birmingham and Gloucester, and the lowest, 0·2*d.*, by the London and Birmingham.

The average rate for pigs on 9 English railways is 0·344*d.* Of these, 4 are above, and 5 below the average. The highest rate, 0·5*d.*, was charged by the Birmingham and Gloucester and the London and South-Western, and the lowest rate, 0·17*d.*, by the Newcastle and Carlisle.

The above averages having been taken on those lines only of which the returns were perfect during two years, the number of lines for each average is small as compared with the number of lines in table No. 1; but as they include the most extensive lines, and are located in all parts of England, the averages may be considered fair.

* This average is really on 18 lines, but the Newcastle and Carlisle has five sections with different rates. See the Table.

TABLE NO. 1.

Name of Railway.	Number of Return.	Per Centage Proportions.		RECEIPTS.								
		Passengers.	Goods.	Passengers.			Goods.			Totals.		
		£.	s.	d.	£.	s.	d.	£.	s.	d.		
Arbroath and Forfar.	1	43.09	56.91	2,051	12	3½	2,709	15	4½	4,761	7	8
	2	38.99	61.01	1,541	6	7	2,413	3	5½	3,955	10	0½
	3	40.19	59.81	1,707	3	1	2,540	19	1	4,248	2	2
	4	36.24	63.76	1,228	3	4	2,160	14	4	3,388	17	8
Ardrossan.	1	46.83	53.17	1,399	12	3	1,588	16	2	2,988	8	5
	2	37.55	62.45	744	18	3	1,238	15	9	1,983	14	0
	3	42.52	57.48	938	2	0	1,268	3	6	2,206	5	6
	4	37.47	62.53	560	10	4	935	9	0	1,495	19	4
Ballochney.	1	9.76	90.24	661	4	5	6,115	10	11	6,776	15	4
	2	5.55	94.45	390	13	6	6,651	18	2	7,042	11	8
	3	2.63	97.37	139	18	4	5,178	13	2	5,318	11	6
	4	2.13	97.87	111	14	4	5,122	18	6	5,234	12	10
Birmingham and Derby Junction.	1	72.06	27.94	20,693	7	3	8,022	7	8	28,715	14	11
	2	69.47	30.53	17,581	4	0	7,727	12	6	25,308	16	6
	3	64.15	35.85	20,487	2	9	11,434	18	2	31,922	0	11
	4	62.27	37.73	16,165	16	1	9,794	6	4	25,960	2	5
Birmingham and Gloucester.	1	87.56	12.44	26,983	11	3	5,249	3	9	42,232	10	10
	2	82.80	17.20	28,754	6	3	5,973	8	11	34,727	15	2
	3	79.72	20.28	34,318	15	4	8,475	8	5	41,794	3	0
	4	80.91	19.09	29,344	18	5	6,925	5	0	36,270	3	5
Bodmin and Wadebridge.	1	..	..	..	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..
	3	3.28	96.72	53	1	1	1,676	4	10	1,731	5	11
	4	4.00	96.00	52	14	5	1,263	17	11	1,316	12	4
Bolton and Leigh, including Kenyon and Leigh Junction.	1	..	..	3,299	17	2	..	..	..	..	..	..
	2	..	..	2,797	12	2	..	..	..	..	..	..
	3	..	..	2,693	8	0	..	..	..	..	..	..
	4	..	..	2,602	18	0	..	..	..	..	..	..
Bolton and Preston.	1	92.06	7.94	3,525	3	10	303	14	1	3,828	17	11
	2	90.42	9.48	3,399	11	5	503	1	8	3,402	13	1
	3	75.74	24.26	3,861	7	11	1,233	14	7	5,085	2	6
	4	71.93	28.07	3,693	15	1	1,469	4	7	5,162	19	8
Brandling Junction.	1	88.78	11.22	10,919	1	0	1,379	10	2	12,298	11	2
	2	88.27	11.73	9,443	7	11	1,255	4	10	10,698	12	9
	3	88.38	11.62	9,919	0	9	1,303	17	9	11,222	18	6
	4	88.41	11.59	9,047	8	10	1,185	15	10	10,233	4	8
Canterbury and Whitstable.	1	9.10	90.90	371	9	6	3,712	1	9	4,083	11	3
	2	9.22	90.78	296	13	9	2,922	12	11	3,219	6	8
	3	10.13	89.87	432	11	6	3,839	0	2	4,271	11	8
	4	8.64	91.36	276	13	3	2,924	7	1	3,201	9	4
Chester and Birkenhead.	1	93.94	6.06	13,563	3	0	875	2	0	14,438	5	0
	2	92.87	7.13	12,550	12	6	932	15	10	13,503	8	4
	3	91.02	8.98	12,113	9	9	1,195	15	10	13,309	5	7
	4	88.79	11.21	10,031	18	0	1,267	3	11	11,299	1	11
Clarence.	1	..	..	..	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..
	3	73.61	26.39	905	18	11	324	16	6	1,230	15	5
	4	70.84	29.16	727	13	8	299	12	5	1,027	6	1
Dublin and Kingstown.	1	..	..	21,337	3	8	..	..	..	..	..	..
	2	..	..	19,101	13	8	..	..	..	..	..	..
	3	..	..	22,057	4	0	..	..	..	..	..	..
	4	..	..	18,988	2	10	..	..	..	..	..	..
Dundee and Arbroath.	1	81.30	18.70	5,718	10	11	1,315	5	3	7,033	16	2
	2	76.92	23.08	4,281	2	4	1,284	8	3	5,565	10	7
	3	79.39	20.51	4,982	17	11½	1,285	16	11	6,268	14	10½
	4	70.80	29.20	3,634	5	4	1,493	15	4½	5,133	0	8½

Table No. 1—continued.

Name of Railway.	Number of Return.	Per Centage Proportions.		RECEIPTS.								
		Pas-sengers.	Goods.	Passengers.			Goods.			Totals.		
				£.	s.	d.	£.	s.	d.	£.	s.	d.
Dundee and Newtyle.	1	43·96	56·04	1,637	2	4	2,038	6	1	3,735	8	5
	2	40·16	59·84	1,234	2	10½	1,839	4	3	3,073	7	1½
	3	44·17	55·83	1,522	18	6½	1,902	3	7	3,425	2	1½
	4	38·74	61·26	1,093	6	1½	1,728	13	7	2,821	19	8½
Dunfermline and Charlestown.	1	..	..	..	..	..	2,300	19	0	..	..	..
	2	9·53	90·37	157	13	6	1,497	7	9	1,655	1	3
	3	13·76	86·24	183	6	0	1,158	8	6	1,331	14	6
	4	7·24	92·76	124	7	0	1,593	13	1	1,718	0	1
Durham and Sunderland.	1	18·30	81·70	3,026	14	3	13,513	11	5	16,540	5	8
	2	20·11	79·89	2,562	2	4	10,230	1	2	12,792	3	6
	3	19·84	80·16	3,037	4	0	12,270	12	0	15,307	16	0
	4	20·51	79·49	2,595	4	11	10,058	13	4	12,653	18	3
Durham Junction.	1	..	..	802	17	3	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..
	3	71·16	28·84	976	2	11	395	12	4	1,371	15	3
	4	61·50	38·50	932	3	7	614	14	8	1,546	18	3
Eastern Counties.	1	94·12	5·88	14,858	4	4	917	12	1	15,775	16	5
	2	90·03	9·97	13,790	7	9	1,527	18	0	15,327	5	9
	3	89·79	10·21	17,159	13	5	1,951	15	8	19,111	9	1
	4	84·99	15·01	19,782	8	0	5,258	9	11	35,040	17	11
Edinburgh and Dalkeith.	1	..	..	..	..	..	3,182	8	7	..	..	..
	2	42·71	57·29	2,595	8	0	3,480	0	4½	6,075	8	4½
	3	64·73	35·21	3,293	6	11½	1,789	8	1½	5,082	15	0½
	4	45·23	54·77	2,261	10	2½	2,739	0	4½	5,000	10	7
Ditto Leith Branch.	1	43·64	56·36	494	13	7½	638	17	8½	1,133	11	4
	2	33·92	66·08	329	2	11	641	1	4½	970	4	3½
	3	68·43	31·57	555	2	8½	256	2	0	811	4	8½
	4	44·40	55·60	280	17	4½	351	10	6	632	7	10½
Edinburgh and Glasgow.	1	..	..	..	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..
	3	81·37	18·63	47,337	13	10	10,841	5	9	58,178	19	7
	4	68·79	31·21	33,364	4	4	15,137	11	4	48,501	15	8
Garnkirk and Glasgow.	1	28·11	71·89	2,311	19	10	5,932	16	2	8,244	16	0
	2	27·11	72·89	1,783	10	5	4,794	5	5½	6,577	15	10½
	3	22·82	77·18	1,874	4	0	6,339	7	10½	8,213	11	10½
	4	33·45	66·55	1,944	4	9	3,863	2	1	5,812	6	10
Glasgow, Paisley, and Greenock.	1	..	..	14,822	3	4	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..
	3	..	..	14,380	16	0	..	..	..	..	..	..
	4	..	..	10,837	11	0	..	..	..	..	..	..
Glasgow, Paisley, Kilmarnock, and Ayr.	1	..	..	22,132	16	1	..	..	..	..	..	..
	2	75·84	24·16	17,810	13	3	5,673	3	11	23,483	17	2
	3	77·94	22·06	19,970	19	4	6,503	6	2	29,474	5	6
	4	68·75	31·25	17,376	13	8	7,898	0	6	25,274	14	2
Grand Junction.	1	80·12	19·88	181,936	1	6	45,163	17	0	227,149	18	6
	2	77·55	22·45	151,038	7	11	43,691	2	4	194,730	0	3
	3	77·42	22·58	150,983	13	0	44,033	12	4	195,017	5	4
	4	71·20	28·80	122,712	2	9	49,652	13	5	172,364	16	2
Great North of England.	1	65·30	34·70	21,640	3	8	11,499	4	10½	33,139	8	6½
	2	61·04	38·96	18,364	13	9	11,738	2	4	30,102	16	1
	3	65·56	34·44	22,096	6	4	11,607	6	7	33,703	12	11
	4	60·44	39·56	19,060	19	9	12,478	0	5	31,538	0	2
Great Western.	1	85·17	14·83	268,526	11	4	46,774	11	0	315,301	2	4
	2	81·29	18·71	236,316	7	5	54,386	13	7	290,703	1	0
	3	82·64	17·36	278,347	8	10	58,366	1	2	336,713	10	0
	4	79·80	20·20	242,909	10	8	61,479	17	3	304,389	7	11

Table No. 1—continued.

Name of Railway.	Number of Return.	Per Centage Proportions.		RECEIPTS.					
		Pas- sengers.	Goods.	Passengers.			Goods.		
				£.	s.	d.	£.	s.	d.
Hartlepool.	1	..	..	2,331	3	10			
	2	16.11	83.89	1,811	15	9	9,433	8	2
	3	15.26	84.74	1,973	11	2	10,961	19	3½
	4	17.47	82.53	1,919	8	11	9,065	14	11
Hull and Selby.	1	59.84	40.16	13,871	2	4	9,310	19	2
	2	53.64	46.36	11,073	19	9	9,382	15	5
	3	50.05	49.95	12,900	2	1	12,875	12	7
	4	43.05	56.95	10,333	18	9	13,668	4	2
Lancaster and Preston Junction.	1	92.94	7.06	10,433	19	1	791	19	10
	2	88.80	11.20	7,412	5	6	934	12	6
	3	90.54	9.46	9,546	16	10	997	16	0
	4	86.55	13.45	8,494	13	9	1,320	10	0
Leicester and Swannington.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	5.88	94.92	516	18	10	9,658	5	1
	4	5.12	94.88	411	14	8	7,632	0	9
Liverpool and Manchester.	1	59.39	40.61	73,534	14	2	50,276	0	0
	2	56.10	43.90	53,050	15	4	41,507	0	0
	3	57.66	42.34	60,891	0	8	45,064	0	0
	4	54.71	45.29	50,507	9	5	41,817	0	0
Llanelly and Llandillo.	1	3.29	96.71	49	18	0	1,464	17	8
	2	1.84	98.16	50	6	3	2,681	13	7
	3	2.29	97.71	59	15	5	2,504	6	11
	4	3.05	96.94	87	0	8	2,759	3	8
London and Birmingham.	1	80.73	19.27	319,299	1	8	76,138	0	4
	2	79.11	20.89	283,064	14	8	74,717	1	10
	3	77.80	22.20	303,109	11	2	86,512	17	9
	4	76.79	23.21	271,616	3	10	84,735	10	8
London and Blackwall.	1	..	..	22,595	18	4	..	..	..
	2	..	..	..	..	..	..	..	..
	3	93.26	1.74	22,793	1	10	402	18	1
	4	95.41	4.59	17,351	19	10	834	7	1
London and Brighton.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	83.31	16.69	89,463	12	5	10,684	15	7
	4	87.44	12.56	62,681	8	1	9,002	9	11
London and Croydon.	1	92.48	7.52	14,873	2	7	1,209	19	6
	2	95.80	4.20	10,543	12	4	461	0	3
	3	95.94	4.06	9,371	8	5	395	19	2
	4	96.45	3.55	6,786	4	4	249	18	3
London and Greenwich.	1	..	..	22,524	11	0	..	..	..
	2	..	..	23,671	11	6	..	..	..
	3	..	..	20,618	17	6	..	..	..
	4	..	..	21,337	3	6	..	..	..
London and South-Western.	1	84.70	15.30	124,070	19	2	22,419	14	9½
	2	79.77	20.23	107,270	11	0½	27,153	18	8
	3	83.34	16.66	137,463	0	7	27,487	16	1
	4	80.37	19.63	107,846	1	8	26,346	13	7
Manchester and Birmingham.	1	..	..	8,000	3	2	..	..	..
	2	..	..	8,477	7	6	..	..	..
	3	77.86	22.14	25,660	2	11	7,298	1	0
	4	80.25	19.75	32,591	11	2	8,020	12	5
Manchester, Bolton, and Bury.	1	67.15	32.85	9,969	16	11	4,878	7	0
	2	65.14	34.86	9,192	19	5	4,919	2	7
	3	62.95	37.05	8,843	6	5	5,205	8	0
	4	61.25	38.75	9,269	17	4½	5,863	19	9

Table No. 1—continued.

Name of Railway.	Number of Return.	Per Centage Proportions.		RECEIPTS.					
		Pas- sengers.	Goods.	Passengers.			Goods.		
				£.	s.	d.	£.	s.	d.
Manchester and Leeds.	1	63·23	36·77	81,010	1	6	47,111	17	2
	2	62·83	37·17	79,273	12	6	46,895	18	7
	3	61·87	38·13	76,925	10	0	47,419	0	3
	4	55·57	44·43	66,079	19	7	51,013	10	11
Maryport and Carlisle.	1	10·41	89·59	293	16	3	2,573	17	6
	2	8·03	91·97	244	10	3	2,800	1	7
	3	8·88	91·12	281	10	0	2,887	13	6
	4	15·52	84·48	584	2	2	3,180	4	2
Midland Counties.	1	75·46	24·54	50,284	5	5	16,355	19	10
	2	72·71	27·29	42,463	8	3	15,938	14	2
	3	73·01	26·99	47,044	14	0	17,390	16	3
	4	74·55	26·45	41,102	17	4	14,767	14	7
Monkland and Kirkintilloch.	1	..	..	..	..	..	10,328	14	10½
	2	..	..	..	..	..	8,768	19	9
	3	..	..	..	..	..	8,849	13	9½
	4	..	..	..	..	..	7,324	3	10
Newcastle and Carlisle.	1	40·60	59·40	17,065	5	4	24,970	16	4
	2	35·53	64·47	12,713	5	10	23,070	17	9
	3	38·22	61·78	14,967	10	4	24,194	6	11
	4	35·67	64·37	11,658	1	7	21,061	0	6
Newcastle and North Shields.	1	92·03	7·97	9,777	0	8	846	15	2
	2	90·04	9·96	8,244	6	1	912	5	5
	3	89·37	10·63	8,720	7	9	1,037	0	2
	4	85·65	14·35	6,662	4	2	1,116	2	9
Newtyle and Coupar Angus.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	54·59	45·43	288	12	7	240	5	5
	4	51·20	48·80	193	9	11	184	8	0
Northern and Eastern.	1	..	..	23,691	13	5	1	1	0
	2	..	..	28,459	2	11	69	3	4
	3	..	..	34,514	10	10	108	3	4
	4	91·46	8·54	31,732	1	6	2,963	0	7
North Midland.	1	67·82	32·18	74,223	3	3½	35,225	17	5½
	2	..	..	59,172	0	0	..	..	..
	3	65·51	34·49	70,955	6	11	37,364	7	1
	4	66·21	33·79	62,402	19	2	31,852	0	0
North Union.	1	85·32	14·68	99,937	0	3	5,152	12	5
	2	72·00	28·00	16,026	5	3	6,232	13	9
	3	77·07	22·93	19,028	10	4	5,792	0	1
	4	67·53	32·47	14,227	5	2	6,841	7	1
Paisley and Renfrew.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	66·00	34·00	390	3	4	201	0	9
	4	58·22	41·78	255	1	8	182	18	2½
Pontop and South Shields.	1	..	..	..	..	..	..	..	..
	2	..	..	848	16	4	..	..	..
	3	3·92	96·08	994	2	4	24,336	13	1
	4	4·51	95·49	1,004	11	6	21,243	14	11
Preston and Wyre.	1	80·20	19·80	8,098	14	5	1,999	18	1
	2	68·69	31·31	3,174	0	3	1,446	10	0
	3	..	..	5,207	13	0	..	..	..
	4	..	..	2,576	16	2	..	..	..
Sheffield and Manchester.	1	..	..	..	..	..	..	..	..
	2	..	..	6,677	12	11	..	..	..
	3	..	..	5,565	15	3	..	..	..
	4	88·91	11·09	8,410	13	5	1,049	11	9

Table No. 1—*continued.*

Name of Railway.	Number of Return.	Per Centage Proportions.		RECEIPTS.					
		Passengers.	Goods.	Passengers.		Goods.		Totals.	
				£.	s. d.	£.	s. d.	£.	s. d.
Sheffield and Rotherham.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	87.28	12.72	5,751	8 7	826	7 2	6,577	15 9
	4	77.54	22.46	5,037	15 0	1,459	2 2	6,496	17 2
Slamannan.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	39.91	60.09	464	1 5	698	7 4½	1,162	8 9½
	4	24.59	75.41	297	10 1	912	5 10½	1,209	15 11½
South-Eastern.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	97.53	2.47	29,680	4 0	751	8 8	30,331	12 8
	4	93.79	6.21	39,656	16 8	2,636	11 6	42,293	9 2
St. Helen's and Runcorn Gap.	1	10.63	89.37	631	16 0	5,308	19 9	5,940	15 9
	2	9.29	90.71	464	7 6	4,535	18 1	5,000	5 7
	3	10.20	89.80	558	8 3	4,913	1 2	5,471	9 5
	4	6.05	93.95	464	0 6	6,214	7 1	6,678	7 7
Stockton and Darlington.	1	58.33	41.67	6,558	1 2	4,684	2 7	11,242	3 9
	2	54.80	45.20	5,599	17 5	4,618	9 3	10,218	6 8
	3	57.60	42.40	6,441	12 8	4,741	10 1	11,183	2 9
	4	53.54	46.46	5,390	10 5	4,678	6 1	10,068	16 6
Taff Vale.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	19.20	80.80	3,291	0 0	12,899	13 4	17,190	13 4
	4	15.80	84.20	2,625	3 11	13,972	0 10	16,597	4 9
Ulster.	1	94.73	5.37	5,601	7 7	317	16 7	5,919	4 2
	2	82.69	17.31	8,141	5 8	1,684	16 7	9,726	2 3
	3	77.65	22.35	8,091	16 6	2,323	19 2	10,420	15 8
	4	66.25	33.75	7,492	12 3	3,967	18 0	11,460	10 3
Wishaw and Coltness.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	1.35	98.65	76	8 8	5,604	3 2	5,680	11 10
	4	4.55	95.45	281	7 3	5,898	6 5	6,179	13 8
Whitby and Pickering.	1	32.59	67.41	794	7 6	1,643	1 1	2,437	8 7
	2	20.10	79.90	396	8 0	1,576	3 5	1,972	11 5
	3	35.42	64.58	804	2 7	1,466	8 1	2,270	10 8
	4	33.52	66.48	508	15 11	979	5 6	1,488	1 5
York and North Midland.	1	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..
	3	75.33	24.67	33,446	0 0	10,950	17 9	44,396	17 9
	4	66.15	33.85	23,665	0 0	12,112	8 10	35,777	8 10

NOTE.—*Dublin and Kingstown*.—The receipts have not been carried out to the column of totals, as it is doubtful whether they include the four following sums received for parcels and passengers' luggage. No. 1—264*l.* 7*s.* 9*d.* No. 2—240*l.* 16*s.* 7*d.* No. 3—252*l.* 3*s.* 9*d.* No. 4—171*l.* 13*s.* 10*d.*

Northern and Eastern.—The sums in the goods column for Nos. 1, 2, and 3, are for live stock only.

TABLE No. 2.—*Passengers.*

N.B.—The letter A inserted with the name of a Railway denotes that the average distance has been computed from the rates and receipts of the Return opposite to which it is placed.

Name of Railway.	No. of Return.	First Class.			Second Class.			Third Class.			Mixed.		
		Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.
A Abroath and Forfar.	1	1,423	9.89	1.9157	5,296	9.81	1.4566	46,576	8.33	1.0040	..	..	d.
	2	1,215	9.51	1.9072	3,649	9.74	1.4617	36,471	7.90	1.0290	..	..	..
	3	962	9.43	1.9161	4,790	9.60	1.4543	38,430	8.26	1.0238	..	..	..
	4	1,062	9.26	1.7679	4,412	9.76	1.3335	32,172	7.98	0.8578	..	..	..
A Ardrossan.	1	8,837	5.58	2.00	32,284	4.84	1.50	..	..	..	..	..	..
	2	3,749	5.48	2.00	19,923	4.57	1.50	..	..	..	..	..	..
	3	8,020	4.80	2.00	30,348	3.25	1.50	..	..	..	..	..	..
	4	5,050	4.44	2.00	21,121	2.83	1.50	..	..	..	..	..	..
Birmingham and Derby Junction.	1	..	..	..	..	..	..	..	..	..	103,165	23.44	1.94
	2	..	..	..	..	..	..	..	..	..	85,484	22.49	2.08
	3	19,824	28.43	2.87	44,097	24.56	2.03	34,246	17.40	1.44	..	..	..
	4	18,214	34.09	2.13	34,654	24.09	1.96	29,605	17.41	1.49	..	..	..
Birmingham and Gloucester.	1	50,294	24.39	3.00	117,660	19.14	2.00	25,322	19.63	1.25	..	..	..
	2	41,675	23.70	2.875	82,065	18.49	1.875	26,962	20.56	1.33	..	..	..
	3	42,501	25.44	3.00	97,269	20.11	2.00	31,580	19.14	1.065	..	..	..
	4	34,917	25.73	3.325	67,095	20.87	2.25	21,471	21.64	1.25	..	..	..
Bolton and Leigh.	1	11,009	7.32	2.44	30,154	6.98	1.77	..	..	..	..	..	..
	2	9,054	7.21	2.44	25,868	6.92	1.77	..	..	..	..	..	..
	3	7,988	7.29	2.44	27,841	6.85	1.77	..	..	..	..	..	..
	4	8,780	7.23	2.44	25,499	6.78	1.77	..	..	..	..	..	..
Bolton and Preston.	1	4,040	8.60	..	16,882	8.48	1.90	20,522	8.05	1.25	..	..	..
	2	4,101	10.19	2.75	15,107	9.80	1.75	22,901	9.53	1.25	..	..	..
	3	4,380	10.41	2.75	17,652	10.01	1.75	26,426	9.37	1.25	..	..	..
	4	4,651	..	2.75	15,441	..	1.75	26,840	..	1.25	..	..	..
B Bullin Junction.	1	24,827	..	..	296,860	..	..	..	..	..	..	7.61	1.065
	2	24,346	..	..	241,466	..	..	265,812	..	..	..	3.76	1.143
	3	22,777	..	..	263,087	..	..	..	..	..	..	7.21	1.143
	4	46,573	7.05	1.344	228,838	6.87	1.036	..	..	..	..	..	..

TABLE NO. 2.—*continued.*

Name of Railway.	No. of Returns.	First Class.			Second Class.			Third Class.			Mixed.		
		Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.
Durham and Sunderland.	1	..	..	d.	..	..	d.	..	..	d.	75,533	7.95	d.
	2	..	..	..	..	..	..	..	..	..	65,550	7.95	1.20
	3	..	..	..	..	..	..	..	..	..	80,204	8.00	1.20
	4	..	..	..	..	..	..	..	..	..	68,054	8.00	1.20
Eastern Counties.	1	27,373	11.51	2.65	64,511	11.24	1.87	109,793	8.54	1.46	..	..	..
	2	28,539	11.48	2.65	52,881	11.33	1.87	101,059	8.84	1.46	..	..	..
	3	28,859	11.52	2.65	66,926	11.82	1.87	129,304	8.72	1.46	..	..	..
	4	36,397	21.93	2.70	69,581	19.91	2.00	82,527	13.92	1.50	..	..	..
Edinburgh and Dalkeith.	1	..	..	..	..	..	..	..	..	..	..	..	..
	2	91,302	6.47	0.9096	22,267	3.47	0.9088	..	..	..	..	..	..
	3	131,907	6.37	0.7992	39,385	3.43	0.8616	..	..	..	..	..	..
	4	95,779	6.32	0.8016	19,752	3.46	0.8352	..	..	..	..	..	..
Ditto Leith Branch.	1	..	..	..	33,516	3.36	1.032	..	..	..	..	..	..
	2	..	..	..	24,050	3.23	0.9953	..	..	..	..	..	..
	3	..	..	..	43,512	2.94	1.0368	..	..	..	..	..	..
	4	..	..	..	22,538	3.21	0.912	..	..	..	..	..	..
Edinburgh and Glasgow.	1	..	..	..	..	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..	..
	3	51,060	33.65	2.09	84,061	27.17	1.56	205,134	22.65	0.85	..	..	..
	4	41,043	33.75	2.09	60,249	24.23	1.56	154,816	20.11	0.85	..	..	..
Garnkirk and Glasgow.	1	2,920	9.21	1.277	77,566	7.83	0.856	..	..	..	..	..	..
	2	2,969	9.69	1.218	53,444	8.15	0.901	..	..	..	..	..	..
	3	3,362	9.46	1.089	61,428	8.21	0.820	..	..	..	..	..	..
	4	4,976	9.26	1.010	68,222	8.22	0.748	..	..	..	..	..	..
Glasgow, Paisley, and Greenock.	1	51,917	19.70	..	183,743	16.31	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..	..
	3	33,572	..	..	95,561	..	..	220,378	..	..	..	..	..
	4	26,583	21.10	..	70,047	14.52	..	168,955	..	..	..	..	..

Kilmarnock, and Ayr.	2	30,071	1-875	112,942	1-25	159,023	0-875	12-24
	3	30,546	1-875	136,974	1-25	231,793	0-875	..
	4	28,719	1-875	133,449	1-25	255,593	0-875	..
	1	153,497	..	78,182	..	30,208	..	58-14
Grand Junction.	2	130,367	..	73,030	..	30,685	..	56-52
	3	111,997	59-41	78,983	37-79	24,174	73-55	..
	4	91,004	59-58	63,819	36-35	18,715	76-68	..
	1	..	..	..	..	..	..	..
Ditto Manchester and Birmingham Traffic.	2	..	..	..	..	..	..	..
	3	14,843	48-84	6,332	50-66	5,288	50-10	..
	4	20,288	47-86	7,892	40-91	5,485	49-10	..
	1	17,195	35-61	34,320	27-47	30,576	21-01	..
Great North of England.	2	14,832	36-02	25,486	27-18	37,621	19-13	..
	3	16,248	35-20	38,916	27-61	25,574	20-67	..
	4	14,015	33-92	29,233	27-59	20,929	19-23	..
	1	201,964	44-04	634,638	24-26	45,517	44-14	..
Great Western.(A).	2	204,132	42-92	482,249	24-81	50,190	44-14	..
	3	199,097	45-77	597,690	26-24	72,656	36-02	..
	4	195,532	45-12	469,081	26-38	60,514	38-41	..
	1	12,326	5-68	36,011	6-87	1,732	8-21	..
Hartlepool.	2	10,084	5-98	26,962	6-63	18,378	..	..
	3	13,572	..	21,970	..	19,260	..	..
	4	12,134	..	20,182	..	76,251	19-91	..
	1	19,887	19-91	27,656	19-98	67,911	18-12	..
Hull and Selby.	2	16,821	22-46	17,480	23-55	81,176	18-22	..
	3	15,892	23-34	22,466	24-86	48,116	17-08	..
	4	13,742	22-66	18,711	24-51	31,779	14-47	..
	1	25,592	19-31	14,097	13-92	29,262	14-24	..
Lancaster and Preston.	2	18,024	19-23	11,560	12-77	21,212	14-67	..
	3	23,187	19-18	12,637	17-10	23,913	12-42	..
	4	17,931	19-09	11,822	18-22	..	..	..
	1	..	..	..	..	..	..	..

TABLE, No. 2—continued.

Name of Railway.	No. of Re- turn.	First Class.			Second Class.			Third Class.			Mixed.		
		Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.
Leeds and Selby.	1	16,175	5.74	d.	26,478	6.82	d.	45,663	6.48	d.	..	..	d.
	2	13,165	5.75	..	17,463	6.34	..	38,769	6.55	..	..	..	..
	3	..	..	..	..	..	..	..	..	..	..	..	..
	4	..	..	..	..	..	..	..	..	..	..	..	..
Liverpool and Manchester.	1	172,943	21.01	2.36	217,380	21.91	1.71	..	..	..	..	..	..
	2	132,189	20.09	2.36	171,911	18.92	1.77	..	..	..	..	..	..
	3	147,011	20.85	2.36	197,572	19.61	1.77	..	..	..	..	..	..
	4	132,977	20.95	2.36	154,853	18.62	1.77	..	..	..	..	..	..
London and Birmingham.	1	161,044	77.71	3.214	212,987	57.55	2.143	39,241	60.73	1.50	..	..	..
	2	148,842	76.25	3.214	180,277	55.96	2.143	43,412	62.36	1.50	..	..	..
	3	145,130	76.09	3.214	210,967	57.79	2.143	51,743	64.31	1.50	..	..	..
	4	142,705	74.76	3.214	175,726	57.66	2.143	42,353	61.26	1.50	..	..	..
London and Brighton.	1	..	..	..	..	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..	..
	3	107,386	35.80	3.50	125,805	27.21	2.25	61,221	10.08	1.50	..	..	..
	4	88,721	30.20	3.50	71,215	24.79	2.25	65,785	13.05	1.50	..	..	..
London and Croydon.	1	58,143	6.19	3.03	170,935	5.53	2.30	37,227	5.19	1.00	..	..	..
	2	48,501	10.19	2.84	106,883	7.37	2.07	29,171	5.70	1.26	..	..	..
	3	33,011	7.96	2.35	105,859	6.80	2.00	35,102	5.89	0.89	..	..	..
	4	29,393	7.81	2.45	84,609	6.60	1.90	..	..	..	..	..	..
London and South-Western.	1	109,838	40.56	3.20	202,727	29.07	2.30	21,290	57.11	1.20	..	..	..
	2	112,153	38.41	3.20	180,679	26.51	2.30	26,750	55.18	1.20	..	..	..
	3	121,125	42.35	3.125	221,246	28.60	2.30	40,356	59.24	1.20	..	..	..
	4	111,926	38.21	3.125	178,800	26.08	2.30	31,171	57.72	1.20	..	..	..
Manchester and Birmingham, (local traffic.)	1	8,115	4.83	3.00	25,894	4.08	2.40	257,681	4.86	1.20	..	..	..
	2	8,372	6.04	3.00	33,824	6.89	2.33	207,237	5.04	1.25	..	..	..
	3	16,078	10.47	3.00	46,473	8.84	2.33	179,876	6.04	1.25	..	..	..
	4	21,809	9.04	3.00	61,995	8.45	2.33	215,084	6.32	1.25	..	..	..

TABLE No. 2—continued.

Name of Railway.	No. of Re- turn.	First Class.			Second Class.			Third Class.			Mixed.	
		Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.	Number.	Average Distance.	Rate.	Number.	Average Distance.
				<i>d.</i>			<i>d.</i>			<i>d.</i>		<i>d.</i>
North Midland.	1	70,178	40.27	3.00	132,222	21.86	2.00	268,037	9.72	1.00	..	..
	2	65,260	25.43	3.00	106,174	19.32	2.00	223,072	13.33	1.50	..	..
	3	73,960	26.32	3.00	156,563	15.33	2.00	267,331	12.77	1.50	..	..
	4	57,183	..	3.00	124,239	..	2.00	198,708	..	1.50	..	..
North Union.	1	61,203	..	2.43	55,518	..	1.62	..	..	..	..	17.27
	2	44,814	..	2.43	43,999	..	1.62	..	..	..	..	16.52
	3	49,636	..	2.43	50,893	..	1.62	..	..	..	..	17.05
	4	39,492	..	2.43	42,289	..	1.62	..	..	..	..	16.18
Northern and Eastern. (A)	1	..	..	2.338	..	..	1.774	..	..	1.158	263,735	10.41
	2	..	..	2.346	..	..	1.787	..	..	1.212	186,186	13.75
	3	64,368	21.28	2.174	124,288	19.47	1.655	51,681	13.92	1.109	..	..
	4	74,411	19.45	2.174	112,242	16.74	1.655	50,418	13.08	1.109	..	..
Pontop and South Shields.	1	..	..	..	..	..	..	..	..	..	33,869	5.35
	2	..	..	..	..	..	..	..	..	..	..	..
	3	8,791	5.41	1.43	29,413	5.72	1.07	..	..	..	..	..
	4	10,223	5.44	1.49	26,265	5.31	1.07	..	..	..	..	..
Preston and Wyre.	1	16,228	17.85	2.25	20,309	15.30	1.75	56,355	10.30	1.25	..	..
	2	5,640	18.07	2.25	6,045	16.54	1.75	23,576	11.99	1.25	..	..
	3	10,300	19.65	2.25	10,320	18.34	1.75	30,770	11.61	1.25	..	..
	4	4,764	19.40	2.25	4,911	15.86	1.75	21,573	10.06	1.25	..	..
Sheffield and Manchester.	1	5,321	3.59	3.00	6,465	3.59	2.00	41,539	3.35	1.50	..	..
	2	19,808	3.98	2.25	27,125	3.98	1.75	177,639	4.00	1.25	..	..
	3	12,383	4.06	..	30,538	4.06	..	115,800	4.06	..	..	..
	4	21,070	4.13	..	54,146	4.13	..	269,078	4.02	..	..	..
Sheffield and Rotherham. (A)	1	..	..	..	..	..	..	..	..	..	..	..
	2	..	..	..	..	..	..	..	..	..	..	..
	3	4,116	5.00	2.40	581	5.00	1.80	151,729	5.00	1.20	62,261	5.00
	4	985	6.00	2.40	2,454	5.00	1.80	133,685	5.00	1.20	48,110	5.00

In the course of this brief sketch I have been desirous of directing the attention of the Society to certain peculiar features of the tables, as illustrative of their utility in indicating the accession of some new stimulating or depressing cause, which it may be interesting and useful to investigate. To go further than briefly to point out some of the most prominent of such variations, would be a departure from my task.

As my principal object was to call attention to the official returns of railway traffic in reference to their capability of adaptation to the purpose of furnishing information in *local* statistics, I have, with the exception of the remarks on the average rates of charge, left untouched the general results of the railway system. These have been given, as deduced from the same returns, by Mr. Porter, in the paper already alluded to, where they are stated with the perspicuity that characterizes the works of that able statist.

January 17, 1845.

Statistics of the Educational Institutions of the East India Company in India. By LIEUTENANT-COLONEL W. H. SYKES, F.R.S.

[Continued from page 147.]

HISTORICAL QUESTIONS.—*Senior.*

1. Give some account of the Gracchi—their descent and character, and the state of parties in Rome at the time they flourished.
2. What was the Mithridatic war, and who were the principal Roman Generals engaged?
3. State (1) the origin of the Achæan league, (2) the principles on which it was established, (3) its termination, and (4) the chief characters who figured in it.
4. Give some account, with dates, of the Battles of the Metaurus, Mycale, Arginusæ, Delium, Chæronea, and Mutina.
5. At what time, and under what Emperors, did the final division of the Roman Empire into East and West take place? and what countries were comprehended in each division?
6. Give the line of policy pursued by Henry VII. in his Internal Government, and the means by which he carried it into effect.
7. What events led to the English wars with France in the 13th and 14th centuries? How did the English finally lose possession of their conquests.
8. State the rise and progress of the representation of the Commons in England.
9. Mention some events in the lives of Sebaktagin, Nadir Shah, Seraji, Mahomed Toghlak, and Holkar.
10. Describe the religious opinions, political designs, and revenue system of Akbar.
11. When did the Romans first become acquainted with the Oriental mode of warfare, and in what respects did it principally differ from their own?
12. What are the earliest Historical Records among uncivilized nations? and what are the changes which they usually undergo before we arrive at the period of true History? Illustrate this by instances from the Histories of Greece and Rome, of India, and of Europe.

GEOMETRY.—*Senior.*

1. To a given straight line apply a parallelogram, which shall be equal to a given triangle, and have one of its angles equal to a given rectilineal angle.
2. If a straight line be divided into any two parts, the square on the whole is equal to the sum of the squares on the parts with twice the rectangle contained by the parts.

3. The opposite angles of a quadrilateral figure inscribed in a circle are equal to two right angles.

Give also the demonstration of the converse.

4. The area of a triangle is equal to half the product of its base multiplied by its altitude.

5. Describe an isosceles triangle having each of the angles at the base double of the vertical angle.

Give the construction for inscribing the regular decagon in a circle.

ALGEBRA.—Senior.

6. Find the square root of $4x^8 - 16x^6 - 16x^5 + 12x^4 + 32x^3 + 24x^2 + 8x + 1$.

7. Divide a number a into two such parts, that the sum of the quotients, which it contains, when one part is divided by m and the other by n , may equal b .

8. Required two numbers whose sum is $\frac{1}{6}$ of their product, and the greater is to the less as 3 to 2.

9. Given $\begin{cases} x + y = a \\ x^4 + y^4 = b \end{cases}$ to find x and y .

10. Find such a number, that if we take it seven times from its square, the remainder will be 44.

PLANE TRIGONOMETRY.—Senior.

11. If AB be 8, AC $7\frac{1}{2}$, and BC 12 miles, and the angle ADB $107^\circ 56' 13''$; required the distances DA , DC , and DB .

12. The two sides of a right angled plane triangle, which contain the right angle, are $242\cdot7$ and $321\cdot2$; required the hypotenuse.

13. At the top of a castle which stood on a hill near the sea-shore, the angle of depression of a ship's hull at anchor was $4^\circ 52'$, at the bottom of the castle the angle of depression was $4^\circ 2'$. Required the horizontal distance of the vessel, and the height of the hill on which the castle stands above the level of the sea, the castle itself being 64 feet high.

NATURAL PHILOSOPHY.—Senior.

1. Illustrate the different kinds of levers, and calculate the advantages gained by each.

2. State the law for the transmission of force through a rigid body, and deduce it from the principle of two equal and opposite forces balancing upon such a body.

3. Describe the formation and use of the Screw.

4. Describe the Hydrostatic Press, and explain the principle of its action.

5. Describe the Air-pump, and some of the principal experiments for which it is employed.

6. The Cylinder of an Air-Pump = one-fifth the contents of the receiver: required to find the exhaustion at the fourth stroke.

7. Explain and illustrate the principle of the Compound Microscope.

8. Explain the principles on which all telescopes are constructed.

9. State briefly the principles on which the Calendar is constructed, and the nature of the Julian and Gregorian corrections.

10. State Kepler's three planetary laws, and deduce its own proper consequence from each.

ANSWERS.—AUNUND KISSEN BOSE.

Bacon.

1. The ancient philosophers, who delighted themselves in the luxuriance of imagination, rejected with disdain the aid of experience, which they thought was too humble and mean a guide to follow. They were as yet untutored by the truths of inductive philosophy, and hence they were led to make too poor an estimate of the tedious and irksome process of analysis and generalization.

This is the false estimation that Bacon here alludes to. To be much conversant in experience and particulars was, in the opinion of the ancients, a degradation

from the dignity of the human mind, and an occupation which seemed to contract its powers. They feared nothing so much as to be too matter-of-fact minded. They did not deign to examine the limits of their power; they therefore plunged themselves into inquiries which are beyond the reach of the human intellect; their speculations in theology, however sublime and transcendent, were carried too far to betray at once the energy and weakness of man. These reflections they thought were congenial to their nature, and hence derided such exertions as were directed to the discovery of truths which are subject to the sense; little knowing how to rise up "from Nature up to Nature's God." They found it more easy to invent a hypothesis for the explanation of a phenomenon than to search for its real cause; hence they call the search tedious; "ignoble to meditate" in comparison with the Divine speculations above alluded to; "harsh to deliver," because on such subjects they could not make a display of their eloquence, which they were ardently fond of, their delivery being reduced to a bare rationale of facts; "illiberal to practise," because they thought it to be of a degrading occupation; "infinite in number," because they knew not how to generalize.

2. The doctrine of Plato here alluded to is that there is nothing new on the earth, and that all knowledge is but remembrance—he supposed that the mind is filled with the image of existing things from the very beginning, and that the senses cannot be accounted as the origin of knowledge; but as instruments, by which our notion of things, which lies dormant, becomes revived.

3. Superstition requires the immediate interference of the Deity in all the operations of Nature, and claims the peculiar privilege of explaining every physical, mental and moral phenomenon, by some development of supernatural agency. Her votaries fall into an error just opposite to that of the Atheists; the latter rest on "second causes scattered;" the former deny at once the efficiency of second causes; hence superstition cannot stoop to acknowledge the genuine functions of the senses; it is her interest to condemn them as fallacious. She valueth more the false operations, and the innate energy of the man within, than the indispensable aid of the man without.

4. The followers of Aristotle maintained, in their dialogues and discourses, that the senses are the origin of our knowledge, which the Platonists denied; but the latter, in their reasoning and inquiry, take a view of particular examples, and make and approach to induction, though in a manner showing that they set not the least value upon it; while the former in their mode of argumentation betrayed a supine neglect of the aid of experience, a minute attention to rules of synthesis, without regard to the nature of the results they brought out. Hence the followers of Aristotle "give the due to the sense in assertions," (which the Platonists do not acknowledge,) and deny it much more in practice than those of Plato.

6. They rested only upon agitation of wit; that is, they rested only upon the deductions of theory without stooping to compare them with those of experience, or bringing the aid of the latter to bear upon the former. The schoolmen were particularly famous for their singular array of arguments, compact and beautiful in their superstructure, but based upon an unsteady foundation.

8. Bacon points out the errors into which the ancients had fallen with respect to their low estimation of experience; he shows clearly that the feeble progress of philosophy is owing to her votaries having disdained to court the aid of this humble but sure guide; that this contempt is unjust and unfounded; that induction is the only means by which man can unravel the arcana of nature and feel that he treads on firm and unyielding ground.

Macbeth.

1. The witches had accosted Macbeth, calling him Thane of Glamis, Thane of Cawdor, and King that would be. On the arrival of the messenger from King Duncan, he learnt that he *has* been made Thane of Cawdor, and as he was already Thane of Glamis, the truth of these two assertions of the witches was consequently verified. These two truths, therefore, Macbeth considers as the prologue to the "imperial theme." The imperial theme is the promise of royalty which the witches had honoured him with.

2. The hasty fulfilment of a part of the prophecy of the witches kindled up the ambition of Macbeth, who began to see before him the prize of Royalty. He is at first perplexed what to think of this circumstance, whether it would end in good or evil; then he makes up his mind and says, it cannot be ill, for it hath given me

earnest of success commencing in a truth, which is that I am already made the Thane of Cawdor; thus far his hopes being fed, there rises a secret question in his heart—why then may I not be a King.

3. Macbeth yielding to the electric current of his imagination, thinks of the murder of Duncan, but he staggers at the thought, and says to himself that the project of murder which his thought has hatched, though yet but a dream, works such a tremendous effect upon him.

4. The sense here seems to me ambiguous. It may either mean that from the perturbed state of Macbeth's mind, the functions of his body and mind were smothered and received a momentary check; or that the perpetration of the contemplated deed seems to be prevented from its being smothered in surmise, buried as it were in doubts. The mind of Macbeth is in a state of dilemma; he wavers and fears, he hopes and determines, according as he looks forward to the consequence or reflects upon the present happy conjunction of circumstances.

5. That is, that which has no existence produces an effect like a real existence. The phantasm of the imagination, a mere nonentity, torments Macbeth and forces him to make this observation.

RAJNARAIN BOSE.

Bacon.

1. The supporters of this false estimation maintained, that it is a matter of degradation to the mind of man to be much conversant with the knowledge of material nature, which is "subject to sense, and bound in matter, laborious to search, ignoble to meditate, harsh to deliver, and illiberal to practise;" but that it should rather soar on the wings of speculation, and meditate on the existence of God, his infinite attributes, the gradations of being that are links in the universal chain between God and man, and the pre-existence or immortality of the soul; that it should attempt to reconcile the foreknowledge of God with the free will of man, and the existence of evil with his infinite benevolence and infinite power, and that it should expatiate on the causes, progress, and effects of the phenomena and qualities of the human mind.

2. The doctrine of Plato here alluded to was this, that when Nature was not created, and the germs of the universe lay in chaotic confusion, the Supreme Being had in his mind the pattern of the present system of things in the form of ideas of a general nature, and that he did create this universe by impressing these ideas upon matter, which was at first without form and void. He maintained that the human soul, which is an emanation from the Divine essence; or in the beautiful language of the Persian poet, Jellal-ood-deen Roomee, "a rose from its native garden untimely torn," was, in its pre-existent state conversant with those ideas, and did revel in the appreciation of their beauty; that it has lost them by being confined in this "fleshy nook;" that it should attempt to regain them by contemplation; and that the cold particulars of physical nature should not merely endow the mind with a knowledge of themselves, but that they should contribute to the revival, and excite its faculties to the attainment of those ideas which it possessed when it was, in its pre-existent state, a portion of the Supreme Spirit.

3. Superstition never favoureth the investigation of the qualities of sensible objects. The fancy of the superstitious man is always engaged with the imaginary beings which his own brain has created, in propitiating them in his own favour, and in yielding homage to them with heartfelt veneration. The superstitious man has hardly the time and the inclination to make physical nature the object of his study and speculation. Plato did really mingle superstition with his philosophy. He admitted the existence of demons or genii between God and man, and allowed worship and sacrifices to be paid to their Divine Nature. He also maintained that the souls of wicked men, and those who luxuriated in the enjoyment of concupiscent pleasures, after the dissolution of their bodies, did hover around their tombs, and were unable to free themselves from the earth, in whose pleasures and passions they had so much indulged.

4. In theory, Aristotle favoured the study of external nature, and Plato of spiritual nature. But, in practice, the case has been different; for Plato has given, in his invaluable works, many examples of inductive reasoning; but (as he paid superficial attention to that method of ratiocination, and whenever he uses it, uses it in a kind of rambling excursive manner), they are of no force or effect; while on the other side, the schoolmen of the middle ages, the disciples of

Aristotle, who regarded the works of their master as possessing equal authority with the Bible itself, were not engaged in the study of physical nature, but busied themselves with theological inquiries and metaphysical subtleties.

5 and 6. The schoolmen were utterly ignorant of history, *i. e.*, the history of material nature. Men who were enamoured of theological and metaphysical inquiries, and pursued those inquiries with the greatest alacrity and application, cannot be expected to have much knowledge of natural science, and to pay much attention to its investigation. Their minds rested only upon "agitation of wit," *i. e.*, upon wrangling and controversy on the subjects above-mentioned. Theological controversy was the chief employment of the learned in the middle ages. Any university who could puzzle and confound a rival one with their subtleties was declared victorious, and its renown was spread far and abroad. There were prizes given to the parties victorious in metaphysical disputations. These incitements had due effect upon the minds of students, and they devoted their whole attention and time to the study of theology and metaphysics—to the perusal of the huge volumes of St. Augustine, Thomas Aquinas, and Duns Scotus. The sense in which the term "history" is used in this passage by Bacon, is countenanced by his division of the intellectual faculties of man, and of human knowledge, in the second book of his *Advancement of Learning*. He there divides history into civil and natural history.

7. Plato saw well that if we suppose man's mind to be all-sufficient, and that it can pronounce with decision upon subjects beyond its reach, we must acknowledge on the other hand that it has not the means of doing so; for as far as induction and view of particulars go, so far can man proceed with firm steps in his inquiries and speculations. This is well shown in the case of Plato himself, for he was obliged to have frequent recourse to inductions and view of particulars in the demonstration of his opinions on spiritual subjects as, for example, in his able demonstration of the dissimilarity of the corporeal and intellectual natures of man, and the distinct existence of the human soul.

8. In the above passage, extracted from the *Filum Labarynthi* of Lord Bacon, that illustrious philosopher persuades men to the study of physical nature, and refutes the false opinion that prevailed before his time, that it is a matter of degradation to the human mind to exercise its powers upon material objects, which occupation was considered, by the proud Peripatetics of the middle ages, to be ignoble and illiberal. It should be observed, to the honour of Lord Bacon, that though he depreciates Aristotle in the above passage, and various others of his great Instauration, and calls him the tyrannical Ottoman who kills his brothers that he himself may be the sole sovereign, yet in the dedication of his work named "Colours of Good and Evil" to Lord Mountjoy, he bestows such praise upon Aristotle as almost compensates all his depreciations of that gigantic intellect. Lord Bacon is the founder of modern science. He it was who freed philosophy from the cloister of monks, and the jargon of the middle ages. Though he himself did make few actual discoveries in physical science, yet to him we owe a Newton, a Boyle, and a Laplace. He has been well compared by Thomson, the poet of the Seasons, to Moses, as the person who, out of the gloom of the dark ages, conducted men to the land of true science and true philosophy.

II.—*Shakespeare.*

1. Macbeth, Thane of Glamis and General of Duncan, King of Scotland, in his way to the capital, after his successful repression of a rebellion of some Scottish Thanes, aided by the Norwegians, is greeted, in his way through a blasted heath, with the titles of Glamis, Cawdor, and King, by three witches who wished to gratify their malicious disposition by enticing him to his own destruction by ambiguous prophecies. Immediately after he is hailed with the title of Thane of Cawdor by some messengers from the King. Dumb with astonishment, at the devils' speaking true, he breaks forth into the above exclamation fraught with the most vehement pathos:

"Two truths are told
As happy prologues to the swelling act
Of the imperial theme."

These two truths are his being Thane of Glamis and Thane of Cawdor; and these truths are happy prologues to the act of the imperial theme, *i. e.*, to the act

of his accession to the throne of Scotland; which act is more important than the two happy prologues, and which will be performed with imperial magnificence.

2. Macbeth intends to prove by this assertion that this supernatural soliciting cannot be ill; for, if ill, why then has it commenced in a truth (*i. e.*, his elevation to the Thaneship of Cawdor), and given him pledge of the future consummation of the ardently desired event, *i. e.*, the performance of the "swelling act of the imperial theme."

3. That is, "my intention, the actual execution of which is but yet existing in my phantasy or imagination." Macbeth's fancy is big with the conception of some dark act of blood, *i. e.*, of the assassination of his Sovereign, in defiance of the laws of loyalty and gratitude. His whole frame is agitated, and is shivering with this mental convulsion.

4. That intention, the actual execution of which is but yet existent only in his phantasy or imagination, shakes his single state of man, *i. e.*, convulses his little microcosm so much, that "function is smothered in surmise;" *i. e.*, his natural functions are impeded; and, as it were, suffocated in their operations, by surmise, *i. e.*, by anticipation of the bloody and dark act of assassination which is preparatory to his ascension on the throne of Scotland.

5. Not only his functions are smothered, but he is, as it were, living in the midst of things that are not at present in actual existence, and that are only now existing in his own brain. His mind's eye is seeing only things that are in the womb of futurity. He is not at present standing on the heath; but is, perhaps, grasping a dagger, and burying it in the royal blood of Scotland. The first conception of a bloody act, with the physical convulsion attendant on it, in such a man as Macbeth, who had much of the milk of human kindness in him, is described with a happy and inimitable exactness by the pen of the heart-fathomer, William Shakespeare.

JOGESCHUNDER GHOSE—1ST CLASS.

Replies to Historical Questions.

1st. The Gracchi were descended from a noble family of Romans. They were the sons of Cornelia, who was the daughter of Scipio. Though they were nobles by birth, yet they favoured the people, and proposed in the Senate for the revival of the Licinian law, that is for the equal division of land. This was of course rejected by the Senators: however, the Gracchi became very popular amongst the Romans, and, consequently, the Senate disliked them. Tiberius Gracchus, the elder brother, was killed at the instigation of the Senators, who pretended that he aimed at the sovereignty of Rome; a few years after, the younger brother Caius Gracchus met the same fate. Whether they actually aimed at sovereignty it is very difficult to decide now; but they were guided by motives of patriotism and benevolence to propose for the Licinian law, and their character was every way exemplary; and it was rather the sedition of the Senate against the Gracchi than that of the Gracchi against the Senate. There were two parties at that time in Rome; the one was the aristocratic, the other was the popular party; and one contended against the other.

2nd. The Mithridatic war took place between the Romans and Mithridates in the 7th century after the foundation of Rome. This Mithridates was descended from that Mithridates, who begged the friendship of Alexander the Great, and who was King of Pontus. Sylla, the Roman Dictator, defeated Mithridates at Chæronea, the same place where Philip defeated the Thebans two centuries before; and Pompey and Lucullus were the other Roman generals who were engaged in this war.

3rd. 1.—The states of Achæa and other Greek provinces combined themselves in a league to get rid of the encroachments of the Macedonian Kings, in the 3rd century before Christ. 2.—They pledged themselves to defend each other against any foreign encroachment, and also they took the lead in the affairs of Greece. 3.—The Achæan league was dissolved when the Romans under the Consul Mummius defeated the Greeks. 4.—Philopœmen and Aratus were the chief characters who figured in this league.

4th. After the death of Theodosius, in the fourth century after Christ, his two sons Honorius and Arcadius divided the Roman Empire amongst themselves. Honorius took the Western Empire, and Arcadius the Eastern. The Western Empire comprised Britain, Gaul, Spain, Helvetia, and Italy, &c.; and the Eastern

Empire contained Greece, Syria, and other Asiatic possessions, and Egypt and other African possessions.

5th. The line of policy pursued by Henry VII. was economy; he likewise depressed the power of the nobility, and increased the influence of the Commons by allowing them to purchase the estates of noblemen; he consulted his Parliament on all momentous occasions, and raised the dignity of that august assembly. It was in his reign that something like a Parliament was established in Ireland by Poynings; though the power of the Irish Parliament was very limited, for that assembly could not pass any important laws without the consent of the English Council.

6th. Edward III. of England claimed the crown of France by right of Isabella, the queen of England, who was the daughter of the king of France, and soon after invaded that country and defeated the French in the battle of Cressy; where his son, commonly called the Black Prince, displayed high feats of valour. Soon after Edward returned to England, and his son, being ill-supported by his father, lost all the conquests gradually. All these events took place in the 13th century. In the 14th century Henry V. of England revived his claim upon the throne of France, and having invaded that country he gained a decisive victory over the French in the battle of Agincourt; and soon after a treaty was concluded, by which it was agreed, that Philip the king of France should be allowed to reign during his lifetime, but after his death, Henry should succeed to the throne; and Margaret, the daughter of Phillip, was married to Henry. After the death of Henry V., his son Henry VI., who was a minor, succeeded to the thrones of England and France. It was at this time that an enthusiastic woman named La Pucelle, commonly known as Joan of Arc, spread a rumour that she was destined by God to rescue France from a foreign yoke; however, by this she caught the credulity of the people, and soon after she headed an army and defeated the English; and Charles, the son of Philip, was re-instated on his ancestral throne; and thus did the English finally lose possession of their conquest.

7th. In the year 1215 the barons, sword in hand, extorted from King John his consent to the Magna Charta, the groundwork of English liberty, by which it was enacted, that in criminal matters all Englishmen should be tried by a jury of their Peers, and a free enjoyment of person and property was also secured. However, it was not till the end of the 13th century, that the Commons obtained a share in the legislation. Henry III. was obliged to allow the Commons a share in the legislation, and in his reign it was enacted that knights, citizens, and burgesses should be summoned to attend the Parliament. This was the origin of the House of Commons. In the reign of Edward I. it was enacted, that Parliament should be summoned annually, and oftener if need be. In the reign of Edward III. the House of Commons was re-modelled, and it was enacted that no taxes can be levied without the consent of the Commons; and the House of Commons was constituted in the same form in which it continued for several centuries. In the reign of Queen Anne, the Scotch Parliament was incorporated with the English; and in the year 1800, the Irish Parliament was also united with the English. In the year 1831, a Bill was introduced in the House of Commons by Lord John Russell, for reforming the Constitution of the Parliament; after a long debate for two or three sessions, it was at last passed. By this Bill the number of electors was increased to 900,000 nearly, and all British-born subjects who possess a freehold of 10*l.* per annum are entitled to vote in the election; and some rotten boroughs were disfranchised, and Manchester, Birmingham, and other large towns received franchises. Those who enjoy a clear freehold revenue of 600*l.* per annum are entitled to become members for counties; and a freehold of 300*l.* per annum will entitle a man to become a member for towns and boroughs. The total number of the members of the House of Commons is at present 658, of which 100 represent Ireland and 45 Scotland.

8th. Sebactagin was the son of Aleptagin, and may be said to be the founder of the Afghan dynasty; and Mahomed, the celebrated Sultan of Ghizni, was the son of Sebactagin. He flourished in the 11th century.

Nadir Shah was originally known by the name of Cooly Khan, and was the leader of a band of Tartar shepherds. His valour recommended him to the service of the King of Persia, and soon after he became the King of Caubul. At this time India was governed by a weak and imbecile prince, Mahamed Shah, whose profligacy disgusted his ministers, who invited Nadir Shah to come and take possession of India. Nadir Shah invaded India in 1738, and the imperialists were

defeated by him, and he soon attacked Delhi, and ordered a general massacre of the inhabitants, and after taking an immense quantity of gold and jewels he returned to his country, where he was soon after murdered in his camp by Ahmed Shah Abdalli.

Holkar was a Mahratta Chief, who ruled Malwa. About the beginning of the present century, Jeswunt Rao Holkar became a formidable potentate. Holkar intended to burn Poonah in 1803; but it was saved by the timely arrival of General Wellesley, (afterwards the great Duke of Wellington.) About the year 1805, Holkar ravaged Hindoostan, and defeated Colonel Monson at Shamlee; afterwards he was pursued closely by the English, and he fled to Lahore; soon after Lord Cornwallis concluded a peace with him. During the Government of Lord Hastings the power of Holkar was totally annihilated.

9th. In the war with Pyrrhus, King of Epirus, the Romans first became acquainted with the Oriental mode of warfare; for we know that Pyrrhus brought with him some elephants which the Orientals only use in their warfare. The chief strength of the Romans consisted in their infantry, which was known under the name of Roman legions; but the chief strength of the Eastern nations consisted in their cavalry and elephants. The Romans fought very close, while the Orientals scattered their forces; in these respects the Oriental mode of warfare differed principally from the Roman mode. In the Mithridatic war the Romans became properly acquainted with the Oriental mode of warfare.

10th. The earliest records, among uncivilized nations, consisted in traditions, ballads, and monuments; and gradually these ballads are collected and sung by minstrels, afterwards poems are composed to commemorate principal events, and then history, in the proper sense of the word, takes its rise. Thus we see Hesiod and Homer collected their great poems from ballads and traditions; afterwards true history took place of traditions and poems. The Romans originally used to commemorate their events by songs; and it was not till the time of the Punic wars that historians commenced to write true histories. The Ramayuna and Mahabharut, the two greatest epic poems of India, contain the earliest histories of India which were collected from oral traditions and ballads. After the conquest of India by the Mahomedans we arrive at the period of true history.

In modern Europe, the Druids and minstrels used to commemorate principal events by means of ballads and songs, and the poems of Ossian and others are collected from these ballads.

PRIZE ESSAY.

PEARYCHURN SIRCAR—1ST CLASS.

The Effect upon India of the new communication with Europe by means of Steam.

The application of steam in carrying on the communication with Europe has been the source of innumerable advantages to India. By means of this powerful agent, Europe, ere long regarded as a remote quarter of the globe, has lost that character. The appalling distance between these two portions of the world has been diminished, though not in a scientific sense. The connexion between them has been strengthened by the communication being rendered more easy, and voyages to Europe have lost their forbidding aspect, which had so long dissuaded the unenterprising sons of India from leaving her shores.

The introduction of this great improvement in guiding ships has facilitated Indian commerce to a great degree. Voyages at present are performed within less than a fourth part of the time occupied a few years ago. Vessels are no longer subject to wind and sail, and the lengths of voyages are made subjects of mathematical calculation. Merchants, enabled to transport goods much oftener in the course of a year, and receiving their returns much sooner, have found means to carry on trade on very extensive scales. Capitals are speedily set free, so as to be invested in fresh merchandise, and the prices of articles are lowered by the rapid import of large quantities of them. The application of machinery to manual labour, as existing in Europe, is daily coming into use here also. Thus the commerce of India, one of the principal sources of her civilization and aggrandizement, is indebted to the agency of steam for much of its present flourishing state.

As the enlightenment of India is owing, in a great measure, to her intercourse with Europe, the object that has been instrumental in bringing her close to the

with those of another, there is no possibility of a feeling excited in one being immediately perceived by an observer. A culprit that is undergoing a flagellation feels an emotion of pain which is excited by the irritation of his nerves; the nerves of a spectator not being in a similar state of excitement, he cannot immediately have the same perception of pain.

There is a strong connexion between this fact and the theory of Smith, inasmuch as it may be regarded as the corner-stone of his theory. The connexion may be thus traced. If I can have no immediate perception of another man's feelings, by what process is it, that when I am acquainted with every thing regarding those feelings, I exhibit faint expressions of similar feelings? The solution of this query leads to the theory in question.

Smith argues, that as we can have an immediate perception of our own feelings only, when we observe a person under any sort of excitement, we in imagination transport ourselves into his situation, and conceive what must be the state of our feelings under similar circumstances, and, by this illusive identification, we acquire a perception of his feelings. That such is really the case our author proves by many striking illustrations. We see, says he, a person drawing back his leg when he observes a stroke aimed at the leg of his neighbour; we see the spectators of a rope-dancer writhing and twisting themselves in the same manner as the player does to balance himself; now all this can never arise from any immediate transfer of nervous influence—sympathy alone explains these phenomena.

After having established this groundwork of his theory, Smith goes on to show how, from this principle, we regulate our approbation or disapprobation of another man's conduct.

When I see a person commanding himself in the agony of disease, I approve of his conduct. My approbation cannot arise before I perceive his feelings; the perception is caused by my imagining myself to be transported into his situation, and by observing the state of my feelings under similar circumstances. Thus by *my* feelings I judge of *his*; and if, subsequently, I find that I would have acted similarly as he acts, I approve of his conduct.

Smith, moreover, observes, that our sympathy does not arise so much from the view of the passion as from that of the situation of the person. Thus, on many occasions, as in the case of idiots, of men of callous feelings, and of departed spirits, our illusive sympathy arises from conceiving ourselves in their situations and feeling an emotion which they feel not; on other occasions, when we see a person labouring under a passion, we naturally inquire the cause of it, that we may enter thoroughly into his situation and have a perception of his feelings.

From simple, double, divided, illusive, and conditional sympathy, Smith explains all the phenomena arising from the sense of merit and demerit, of propriety and impropriety.

3. Our actions and affections may be judged under two different views; in relation to the cause which excited them, or the motives from which they sprung; in connexion with the consequences arising from, or the ends proposed by them.

When actions and affections appear to us as suited to, or out of keeping with, their cause or motive which excited them, we approve or disapprove of them.

When the ends they aim at or tend to produce, and the consequences arising from them, appear to us beneficial or hurtful, there arises in our minds a sense of their merit or demerit. When we judge of another man's conduct as consistent with propriety or not, we conceive ourselves placed in his situation, and observing his feelings, if we find every emotion of our heart corresponding with his, we approve of his conduct; if, on the contrary, we find no feelings of our heart responding to his, we disapprove of his conduct.

Our sense of the propriety or impropriety of another man's conduct, therefore, is founded upon the concord, or dissonance, of our sentiments with his.

Our sense of the merit or demerit of an action is a compound sentiment; it is made up of a direct sympathy with the motives of the person who confers the benefit, and an indirect sympathy with the gratitude of the person upon whom the benefit is conferred, on the one hand, and a direct antipathy with the motives of the injurer, and an indirect sympathy with the resentment of the injured, on the other.

We judge of the propriety or impropriety, merit or demerit, of our own conduct by the same principles with which we judge in the case of others.

We approve or disapprove of our own conduct, when, by transporting ourselves

into the situation of an impartial spectator, my sentiments correspond or disagree with those of the imaginary being.

Those actions of our own which are the proper objects of gratitude or resentment, appear to us as deserving of reward or punishment: proper objects of gratitude or resentment, are the objects of that gratitude or resentment which every impartial spectator can go along with. This imaginary being, the man within the breast, is conscience.

4. These general maxims are drawn by a process of induction, acting upon the materials supplied by sympathy. They are of high importance in correcting our momentary and false sympathy, and in the moment of acting under the influence of a passion.

5. Answer to Objection.—The first objection to Smith's theory loses its force, when we recollect that Smith does not regard the first impulse of sympathy as the standard of moral judgment; this is not the 'be all and the end all' in our consideration of what is right or wrong, proper or improper.

It is true that the sympathetic emotions of no two individuals are alike, nor of the same individual at all times; but upon this vacillating and capricious nature of sympathy, we could never rely for the decision of moral truths, had it not, when called into exercise, required the assistance of the general rules of morality, and of the result of the experience of our former sympathies. As, in judging of a composition of genius, a delicacy of taste, sound judgment, habits of comparison and experience, must combine to make our decisions right; as we pronounce those productions to be models or standards of taste, which, throughout the revolutions of time, the mutations of custom and religion, have continued to please the generality of civilized nations; as we do not call that sort of writing the best, which, in the heat of party spirit and popular frenzy, has been applauded to the skies; so in judging aright the conduct of a man, a delicacy of feeling, a vigorous understanding, habits of experience, and a knowledge of human nature are the essential requisites; we call that tenour of conduct just and proper, which not only is the object of our own approbation, but which has become such throughout all ages and in almost all civilized countries. Our approbation of that course of action is not proper, which, under the influence of some passion or prejudice, we for a moment sympathise with.

To explain this view more clearly, I shall take the following instance. Here is a general moral maxim—that the good of the greatest number should be preferable to that of a few; which I observe is quite opposite to the view of my neighbour. I charge him with bad judgment, he retorts the charge upon me; how can the dispute be put an end to? I bring forward arguments from the general economy of nature; but they do not convince him; he gives another turn to the question and says, that he sees no necessity why he should sacrifice his own interest to that of the world. Reason can go no further to convince him; he continues firm in his opinion, till enlarged experience and general commerce with mankind prove how disagreeable such a passion appears to the rest of his fellow-creatures; how little they sympathise with this selfish view. When he learns, that the moral maxim, above alluded to, has continued to guide the generality of mankind from time immemorial, the dislike, with which his selfish view was received, often and often returns to his mind; upon these facts he builds his reasoning, and the accumulation of these concurring circumstances presses upon him with irresistible force, and compels him to believe what at one time he denied. Thus is the capriciousness of sympathy corrected; thus the varying judgments of moral truths are reconciled; and thus the eternal and immutable maxims of morality produce those beneficial effects which it was intended by the Great Ruler of the universe to work.

Answer to Objection II.—With respect to the second objection, it may be observed, that as we can have no immediate perception of another man's feelings, I must, in judging of a person's affection, refer to my affection on a similar occasion. It is true I judge of another man's sentiment by my own; but I do not rely upon this until other concurring circumstances (mentioned in the answer to the first objection) confirm it: here it must be confessed, that the expressions of Smith upon this part of the subject are a little lax.

Amongst the several sorts of sympathy, Smith mentions a conditional sympathy. When I observe that conduct, which to me appears praiseworthy, is notwithstanding censured by the generality of mankind; yet I abide by my conviction by the belief, that if men were thoroughly acquainted with my feelings and motives, if

with those of another, there is no possibility of a feeling excited in one being immediately perceived by an observer. A culprit that is undergoing a flagellation feels an emotion of pain which is excited by the irritation of his nerves; the nerves of a spectator not being in a similar state of excitement, he cannot immediately have the same perception of pain.

There is a strong connexion between this fact and the theory of Smith, inasmuch as it may be regarded as the corner-stone of his theory. The connexion may be thus traced. If I can have no immediate perception of another man's feelings, by what process is it, that when I am acquainted with every thing regarding those feelings, I exhibit faint expressions of similar feelings? The solution of this query leads to the theory in question.

Smith argues, that as we can have an immediate perception of our own feelings only, when we observe a person under any sort of excitement, we in imagination transport ourselves into his situation, and conceive what must be the state of our feelings under similar circumstances, and, by this illusive identification, we acquire a perception of his feelings. That such is really the case our author proves by many striking illustrations. We see, says he, a person drawing back his leg when he observes a stroke aimed at the leg of his neighbour; we see the spectators of a rope-dancer writhing and twisting themselves in the same manner as the player does to balance himself; now all this can never arise from any immediate transfer of nervous influence—sympathy alone explains these phenomena.

After having established this groundwork of his theory, Smith goes on to show how, from this principle, we regulate our approbation or disapprobation of another man's conduct.

When I see a person commanding himself in the agony of disease, I approve of his conduct. My approbation cannot arise before I perceive his feelings; the perception is caused by my imagining myself to be transported into his situation, and by observing the state of my feelings under similar circumstances. Thus by *my* feelings I judge of *his*; and if, subsequently, I find that I would have acted similarly as he acts, I approve of his conduct.

Smith, moreover, observes, that our sympathy does not arise so much from the view of the passion as from that of the situation of the person. Thus, on many occasions, as in the case of idiots, of men of callous feelings, and of departed spirits, our illusive sympathy arises from conceiving ourselves in their situations and feeling an emotion which they feel not; on other occasions, when we see a person labouring under a passion, we naturally inquire the cause of it, that we may enter thoroughly into his situation and have a perception of his feelings.

From simple, double, divided, illusive, and conditional sympathy, Smith explains all the phenomena arising from the sense of merit and demerit, of propriety and impropriety.

3. Our actions and affections may be judged under two different views; in relation to the cause which excited them, or the motives from which they sprung; and in connexion with the consequences arising from, or the ends proposed by them.

When actions and affections appear to us as suited to, or out of keeping with, their cause or motive which excited them, we approve or disapprove of them.

When the ends they aim at or tend to produce, and the consequences arising from them, appear to us beneficial or hurtful, there arises in our minds a sense of their merit or demerit. When we judge of another man's conduct as consistent with propriety or not, we conceive ourselves placed in his situation, and observing his feelings, if we find every emotion of our heart corresponding with his, we approve of his conduct; if, on the contrary, we find no feelings of our heart responding to his, we disapprove of his conduct.

Our sense of the propriety or impropriety of another man's conduct, therefore, is founded upon the concord, or dissonance, of our sentiments with his.

Our sense of the merit or demerit of an action is a compound sentiment; it is made up of a direct sympathy with the motives of the person who confers the benefit, and an indirect sympathy with the gratitude of the person upon whom the benefit is conferred, on the one hand, and a direct antipathy with the motives of the injurer, and an indirect sympathy with the resentment of the injured, on the other.

We judge of the propriety or impropriety, merit or demerit, of our own conduct by the same principles with which we judge in the case of others.

We approve or disapprove of our own conduct, when, by transporting ourselves

into the situation of an impartial spectator, my sentiments correspond or disagree with those of the imaginary being.

Those actions of our own which are the proper objects of gratitude or resentment, appear to us as deserving of reward or punishment: proper objects of gratitude or resentment, are the objects of that gratitude or resentment which every impartial spectator can go along with. This imaginary being, the man within the breast, is conscience.

4. These general maxims are drawn by a process of induction, acting upon the materials supplied by sympathy. They are of high importance in correcting our momentary and false sympathy, and in the moment of acting under the influence of a passion.

5. Answer to Objection.—The first objection to Smith's theory loses its force, when we recollect that Smith does not regard the first impulse of sympathy as the standard of moral judgment; this is not the 'be all and the end all' in our consideration of what is right or wrong, proper or improper.

It is true that the sympathetic emotions of no two individuals are alike, nor of the same individual at all times; but upon this vacillating and capricious nature of sympathy, we could never rely for the decision of moral truths, had it not, when called into exercise, required the assistance of the general rules of morality, and of the result of the experience of our former sympathies. As, in judging of a composition of genius, a delicacy of taste, sound judgment, habits of comparison and experience, must combine to make our decisions right; as we pronounce those productions to be models or standards of taste, which, throughout the revolutions of time, the mutations of custom and religion, have continued to please the generality of civilized nations; as we do not call that sort of writing the best, which, in the heat of party spirit and popular frenzy, has been applauded to the skies; so in judging aright the conduct of a man, a delicacy of feeling, a vigorous understanding, habits of experience, and a knowledge of human nature are the essential requisites; we call that tenour of conduct just and proper, which not only is the object of our own approbation, but which has become such throughout all ages and in almost all civilized countries. Our approbation of that course of action is not proper, which, under the influence of some passion or prejudice, we for a moment sympathise with.

To explain this view more clearly, I shall take the following instance. Here is a general moral maxim—that the good of the greatest number should be preferable to that of a few; which I observe is quite opposite to the view of my neighbour. I charge him with bad judgment, he retorts the charge upon me; how can the dispute be put an end to? I bring forward arguments from the general economy of nature; but they do not convince him; he gives another turn to the question and says, that he sees no necessity why he should sacrifice his own interest to that of the world. Reason can go no further to convince him; he continues firm in his opinion, till enlarged experience and general commerce with mankind prove how disagreeable such a passion appears to the rest of his fellow-creatures; how little they sympathise with this selfish view. When he learns, that the moral maxim, above alluded to, has continued to guide the generality of mankind from time immemorial, the dislike, with which his selfish view was received, often and often returns to his mind; upon these facts he builds his reasoning, and the accumulation of these concurring circumstances presses upon him with irresistible force, and compels him to believe what at one time he denied. Thus is the capriciousness of sympathy corrected; thus the varying judgments of moral truths are reconciled; and thus the eternal and immutable maxims of morality produce those beneficial effects which it was intended by the Great Ruler of the universe to work.

Answer to Objection II.—With respect to the second objection, it may be observed, that as we can have no immediate perception of another man's feelings, I must, in judging of a person's affection, refer to my affection on a similar occasion. It is true I judge of another man's sentiment by my own; but I do not rely upon this until other concurring circumstances (mentioned in the answer to the first objection) confirm it: here it must be confessed, that the expressions of Smith upon this part of the subject are a little lax.

Amongst the several sorts of sympathy, Smith mentions a conditional sympathy. When I observe that conduct, which to me appears praiseworthy, is notwithstanding censured by the generality of mankind; yet I abide by my conviction by the belief, that if men were thoroughly acquainted with my feelings and motives, if

they had viewed the particular conduct from the same point of view as I have done, they would undoubtedly sympathise with my sentiments.

RAJNARAIN BOSE—1st CLASS.

1. The opinion into which I have been led on this often-disputed and most intricate point of moral philosophy, after as much of candid and impartial investigation as I have made up to this time, is this,—that the moral estimate which we form of conduct is founded neither on reason or pure sentiment, but on the compounded principle of what is called by Smith sympathy. I call sympathy a compounded principle, because at every time it is exercised it is compounded of either imaginative and emotive, or imaginative, ratiocinative, and emotive processes. When I sympathise with another person I place myself in his situation, I identify myself with him, *I become he*: this is an act of the imagination. Then, when I have placed myself in his situation, I participate in his feelings: this participation is an emotive process. Sometimes he is reasoning on the ultimate cause of my sympathy, and I participate in his reasonings: this is a ratiocinative process. And then again, after he has reasoned, immediately an emotion springs up in his breast; I participate in this emotion also: here again is the emotive process. However, it is certain that, in every operation of sympathy, there are the imaginative and emotive processes. If we examine our hearts thoroughly, we shall find that every isolated thought which rises in our breast is conjoint with feeling; and that it is certain, that no man can be “an intellectual all in all,” a being of pure intellect and thought.

It is certain, and is agreed to by all moral theorists, that, in every moral estimate, the final faculties which decide the point are the emotions of approbation and disapprobation; it is not certain, however, whether reason or sympathy, or moral sense *precedes* approbation and disapprobation. Now, as general rules have been formed, and at present regulate our moral decisions, we cannot decide this question, unless we take as our data the probable nature of this antecedent process, occurring in the earlier stages of society when general rules were not yet formed, and the instances of it which yet occur at this stage of society when general rules have been formed, and when remembrances of such general rules precede and guide approbation or disapprobation. The supposition of a moral sense, which precedes approbation and disapprobation, is inconsistent with that economy of nature which prevails in innumerable works of her hand, and with which it is *probable* she has acted in this instance also, which probability being such that it almost amounts to certainty. Reason cannot precede approbation or disapprobation. Suppose the case of a savage that first of all saw a murder committed: instantly, it is certain, the emotion of disapprobation should have arisen in his breast; but it is very probable that he would have been unconscious of a ratiocinative process, if we suppose any such, that would have preceded this disapprobation. He thought, says the rationalist, of the results of this murder towards the individual murdered and his family; and also of the prejudicial consequences which this crime, if frequently committed, would have on society. If such reasonings did really precede his disapprobation, then, why was he unconscious of them? In the present state of society, I am certain that, in no case whatever, are we conscious, except very rarely, of a ratiocinative process preceding our approbation or disapprobation. Locke says that, “I cannot conceive how any idea springs up in the mind and I be unconscious of it;” with much more truth I can say, that I cannot conceive how a process of ratiocination is being performed in my mind while I remain unconscious of it.

After the refutation (a feeble one) of the Hutchesonian and the rational system, I will attempt to prove that sympathy does really precede approbation and disapprobation. If we examine our hearts carefully, we will find that, as we are social beings, we often regard the opinions of others. When we are going to perform any bad action, we frequently ask what will *men* think? After we have done any bad action, we usually ask ourselves, after it has been brought to light, what are men thinking of it; perhaps they are thinking so and so; perhaps their feelings towards us are so and so. With respect to other men, we imagine what they have reasoned and felt before and after the commission of such and such an action. We will find that, after every such operation of sympathy, the emotion of approbation

or disapprobation rises in our breast; and we will find that if we do not exercise sympathy before approbation or disapprobation, the remembrance of general rules has supplied its place.

Smith's theory is very simple and deeply founded in the feelings of human nature. I cannot, therefore, think well of the intellect of a very modern moral theorist, who has said that it requires but common acuteness to refute his theory.

2. That we have no immediate experience of what other men feel is very evident. We have no sense by which we can become conscious of other men's feelings. We have eyes to see, ears to hear, tongues to taste, noses to smell, muscular sensation to perceive the feeling of touch, but we have no sixth sense whereby we can become conscious of the *feelings* of others. It is then by the imagination only that we can become conscious of them. Unless we place ourselves in their situation, identify ourselves with them, *and become they*, I cannot conceive of any other way of which we can become conscious of their feelings and emotions. This is sympathy; this is the fact upon which Smith has ingeniously and ably erected his sympathetic theory. I have before proved that sympathy is a compounded principle, and that it does not consist solely of an imaginative process.

3. Every affection can be considered in two relations: first, its relation to the cause which excites it, and, secondly, its relation to the effects which it produces or tends to produce. Upon the suitableness or unsuitableness, gracefulness or ungracefulness of an affection with respect to its cause, depends the decency or indecency, propriety or impropriety of the affection and the conduct which it occasions. Upon the suitableness or unsuitableness of the effects which an emotion produces or tends to produce, considered with respect to the emotion itself, depends the merit or demerit, the utility or the hurtfulness of an action or a line of conduct; and it is deserving either of rewards or punishments, as it becomes the object of gratitude or resentment.

4. The general rules of morality have been formed by the process of induction. After men had felt what actions please, and what actions displease, they have, by an easy induction, formed these rules.

These solid rules of morality are very useful; for they supply the place of sympathy which Smith allows varies with the different humours and different states of the health of men. They are the great regulators of our conduct, and, by an easy reference to them, we can decide cases of morality. It is by a regard to them that we waver many times before the commission of an atrocious act; and, after we have done the deed, it is a regard to these general rules that fills our minds with the stings of remorse, that leads us to consider that we are the object of the detestation of mankind, and subjects us to continual anguish. If we had not the general rules of morality, then, the collisions of various and fluctuating sympathies would have introduced confusion into morals; though it must be confessed that these various and fluctuating sympathies themselves were the sources of the formation of these general rules. It is plain, then, that these rules are of great importance to us as *regulators* of our conduct and moral decisions.

5. First.—Though sympathy is a capricious principle, yet it is not so capricious as its opponents think: for instance, every man on the face of the globe, however depraved his moral principles may be, admires a beneficent action, and disapproves of theft, robbery, and murder. Even the perpetrators of these crimes acknowledge that they are in the wrong, but have been led into the commission of them by want, necessity, or passion. I grant that sympathy is capricious; but then where it is capricious, it is guided and corrected by reason.

Smith, in his review of the rational system, at the latter part of his work, grants that sympathy is capricious, and that all solid and just judgments concerning right and wrong are made by reason. Some nations follow customs which, judged according to the pure and elevated standard of European morality, are morally culpable, but which the nations themselves consider as innocent. The custom of infanticide prevailed in Ancient Greece and Rome. The rites of infant sacrifice and Suttee prevailed until very lately in Hindoostan. In the island of Formosa, promiscuous sexual intercourse is considered no crime; and in some parts of Africa the people throw their old parents from trees. All these have originated in mistaken, misguided, and rude sympathy; yet we can venture to assert that, when those nations will gain the same stock of information and civilization as the Europeans possess, their elevated reason will correct those products of misguided sympathy, and will abolish them altogether. I doubt not that if the Suttee rite had prevailed up to this time, the youths who are educated in the institutions,

where Western learning and literature are cultivated and taught, would not have sympathized with the perpetrators of the rite, and would have disapproved of it.

5. Second.—The objection, as far it goes, with respect to sight, is true; but the inference that “my own resentment cannot be a rule or canon for judging of yours,” from the premises “why may I not feel your resentment proper and my own improper, or both improper,” such inference is not correct. In innumerable cases I judge of your resentment by my resentment, and in those cases such judgment is generally correct. By my resentment of improper, hurtful, and vicious actions, I judge of your resentment of such actions, and this judgment, we find, is usually correct.

The senses in which the words “why may I not feel your resentment proper and my own improper” can be taken, are two. First, when the cause of resentment is the same; and, secondly, when it is not the same. The latter is out of the question altogether; but as to the former, if the cause of resentment be the same, it is impossible that when I call *my own* improper I will call yours proper. I cannot conceive of such a case. So that the words, “why may I not feel your resentment proper and my own improper” are a contradiction in terms. Then, as to the very last part of the objection, when we feel the resentments of both of us to be improper, in this case I judge of your resentment by my resentment. I judge my resentment to be improper, and I pass the same judgment with respect to your resentment; it is plain that I judge of your resentment by my own resentment.

5. Third.—According to my humble opinion, the principle of sympathy does not become insufficient, when applied to cases, wherein a good act, instead of securing the affections of men, subjects us to their hatred. I cannot conceive of such a case as that when a good action subjects us to the hatred of all men. Though the multitude did not relish the poem of Antimachus, yet still there was a Plato to approve of it. So a good action may be disliked by the generality of the actor’s countrymen; yet still he can repose in the sympathies of his wise friends and contemporaries, and countrymen, who approve of the deed. Yet granting such a case to happen as that of a good action incurring the hatred of *all* men, yet still the actor may think that the people are prejudiced against, and have formed some misconception of the scope and tendency of, the action,—therefore they hate it; but when they will be in their right senses, they will shower applauses upon him. If his own generation do not approve of the action, yet still he thinks that posterity will do justice to him. The applauses of future centuries ring upon his ears, and he disregards the contemporary hatred that is pouring invectives and vituperations upon him. It is this conditional and future sympathy that the actor reposes in, and contemplates with calm and serene satisfaction.

HOOGHLEY COLLEGE.

ESSAY.

The Effects upon India of the new communication with Europe by means of Steam.

Nothing tends so much to advance society, to humanize the manners, and to elevate men in the scale of civilization, as intercourse with different nations. It encourages commerce by supplying the wants of one country with the superfluities of another; the knowledge of one people may be made the common property of all by its means; what the people of the remotest regions discover or invent can be communicated everywhere. In short, intercourse renders the earth, separated as it is into continents, islands, &c., by vast oceans, sometimes by insurmountable mountains, into one entire whole, and all mankind as the members of one and the same family.

It was by carrying on an intercourse with the Greeks that the Romans were enabled to improve in the liberal and mechanic arts. It was Greek philosophy that softened and polished the rough military manners of the Romans, and soothed them when misfortune compelled them to look for consolation. In the middle ages, when religious fanaticism, coupled with superstitious zeal, led to the opening of a communication between Asia and Europe, the people of the latter continent, who, sunk in barbarism and ignorance, were then groaning under the pressure of tyranny and oppression, received from the hands of the Asiatics, who were their

superiors in civilization, the blessings of social life and happiness. But those short days of Asiatic glory and superiority are gone, the stream of civilization has taken an opposite course; before it flowed from Asia to Europe,—now, but with more than its pristine vigour and rapidity, it flows from Europe into Asia.

The blessings that Europe now showers upon us are numerous and useful. Both in ancient and modern times Europe has been the seat of philosophy and civilization, but in consequence of there being no safe intercourse in ancient times that civilization was confined to where it grew. But now that that obstacle is removed, an entire change has taken place in the circumstances of countries; whatever is now or has been gathered in Europe, or in any part of the earth, receives an universal circulation.

England, which of all the countries of Europe is nearest related to India by her present position in Asia, is particularly engaged in the cause of Indian improvement. She not only carries on commerce with India, but she is ardently employed in instructing the natives in the arts and sciences, in history and political economy, and, in fact, in everything that is calculated to elevate their understanding, meliorate their condition, and increase their resources.

But since from a communication with Europe these benefits upon India have resulted, if this communication be rendered more easy and rapid, would not the benefits received increase in proportion? The sooner a thing desired is had the better. But this facility of communication is beneficial in many other ways,—whether to carry on war, or manage the civil affairs of a distant empire, or communicate with a friend situated in a remote country, in every one of these concerns expedition is the chief instrument of success. To secure expedition and facility in carrying intelligence from one place to another public roads are constructed, post-offices established, &c. But none of these means has proved of greater use in answering the desired end than steam. By means of steam a distance—a distance that took 18, afterwards 6 months to pass over, now takes 6 weeks only. Hence whatever advantages existed before, is, by the new mode of communication, increased four times. Now Europe is brought nearer to Asia, and each can partake of the fruits of labour of the other with more ease than before. But since in the event of an association of an inferior with a superior the inferior is the gainer, let not our rulers think themselves the losers, for a knife is whetted upon a stone which is in itself not sharp. The English are to us what the Romans were to the English; and as the English are the children of modern times, and command more resources and power than the Romans, we derive the greater advantage. The facility afforded to communication by the use of steam has enabled the English to govern our country with great prudence and vigilance; they do not appear to be at any time at the risk of forbearing in the glorious work which they have commenced, of improving the native mind and condition, but prosecute it with honour to themselves and favour to their subjects, till they are styled the regenerators of India.

NOBINCHUNDER DASS.

PAPER ON GENERAL LITERATURE.—ANSWERS.

Bacon.

Answer 1.—By the passage, “That it should be a diminution of the mind of man, &c.,” is meant that it is a degradation of the mind of man to be very familiar in experiences and particulars; intimating that it is beneath the dignity of the human mind to be conversant in them, for they are derived through our senses and from matter: also, because it requires great labour to find out these experiences and particulars, which are too mean to be deeply thought of, disagreeable to be made known, unworthy of being practised or imitated, too many to be enumerated in the flourishing of arts.

Answer 2.—Plato maintained, that human happiness depends on the true knowledge of the Almighty, which is to be acquired from speculations, as God and matter were different things, having no connexion with each other.

Answer 3.—“Superstition never favoureth the sense:” the author means to say, that one who pays great veneration for superstition is incapable of favouring the dictates of his sense, or of allowing them to be correct, when they do not coincide with his superstitions.

Answer 4.—Aristotle’s school asserted that opinions should be founded and ex-

plained by our sense; but Plato's school asserted, that the same should be accomplished by speculation. In practice, however, the first acted contrary to his own assertion in a greater degree than Plato did.

Answer 5.—The author means to say, that the schoolmen were utterly ignorant of the different phenomena of nature and the dependencies existing in it.

Answer 6.—"Resting upon the agitations of wit," means depending upon what they made out by consulting their wit.

Answer 7.—Plato observed that he could not, upon proper grounds, suppose that the mind of man is of itself sufficient to make all investigations without having recourse to anything else.

Answer 8.—From the whole passage it appears, that we must invariably make reference to the works of nature for arriving at any correct conclusion, and that true knowledge depends upon experiences and particulars.

Shakspeare.

Answer 1.—The two truths told to Macbeth (while he was passing on) by some witches and spirits. They were that Macbeth would become the Thane of Cawdor and the Thane of Glamis, and the imperial theme was that he would be the Sovereign.

Answer 2.—Macbeth, by asserting that I am the Thane of Cawdor, intends to prove that what was made known to him by the supernatural agency could not be ill; for what they prophesied was partly fulfilled, as he became the Thane of Cawdor, and similarly the rest might also be fulfilled.

Answer 3.—The word fantastical means fanciful; and therefore the whole passage means,—whose murder is not yet accomplished, but only thought of in his mind, or intended.

Answer 4.—This passage means, that considerations relative to the murder have smothered his purpose, or have rendered him incapable of executing his object.

Answer 5.—I take this to be its meaning:—Macbeth says, that "nothing is but what is not"—smothered, alluding to his person; that is to say, nothing remains of him except his body, his senses being smothered by the thought.

HURRYMOHUN CHATTERJEE,

Upper School, 1st Class, Sec. A.

ANSWERS TO HISTORICAL QUESTIONS.

Answer 1.—The two brothers Tiberius and Caius were the sons of the high-minded Cornelia, by Gracchus. In one of his journeys through Italy, Tiberius, the elder, observing the wretched condition of the people, resolved to redress their grievances, and place them on terms of equality, at least before the laws, with their haughty lords. On his return to Rome he stood a candidate, and became the tribune of the people. The first acts of Tiberius, after being installed tribune of the people, were well calculated to gain their favour. He proposed, and carried into effect, the agrarian law; measures were taken for the rebuilding of Carthage; and he proposed, what the Senate after a useless waste of blood and treasure was obliged to concede, the extension of the privileges of the citizens of Rome to all the inhabitants of Italy. But Tiberius was not thus allowed to carry on his measures; the Senate took alarm at these dangerous encroachments on their power, and resolved, if possible, to put him out of their way. In a tumult excited by one of his measures, Tiberius was slain, to the regret of the people of Italy.

But his brother Caius was near at hand to avenge his fate. Being elected tribune, he proposed that none but the knights should be elected senators, and that the *commita centuriata* should be transferred from the senate to the people. Not content with this, he resolved to carry the measures of his brother into effect. Accordingly, he invited a great number of Italians to Rome to carry out that law, which vested the rights of the citizenship of Rome to the allies; but the brutal Optimus, at the instigation of the Senate, fell upon him while still in the Forum, and slew him with a great number of his followers.

Thus fell the two brothers Tiberius and Caius, whose patriotism has been stigmatised with the name of sedition by historians. Tiberius possessed all the talents of an accomplished statesman, and understood well the means by which he could carry on his measures with success. Caius, though inferior to his brother, was still a good statesman.

The state of parties in Rome at this time was of a most heterogenous nature. While the former distinctions of patricians, plebians, and clients remained, the new ones of poor and rich began gradually to usurp their place.

Answer 2.—The Mithridatic war was a war with Mithridates, king of Pontus. This bold and powerful Asiatic, having consolidated his own kingdom, resolved to seize on the possessions of Rome, and ordered, in a cruel manner, the general massacre of all the Romans found in Asia. The generals who were successively engaged in this war were Sylla, Lucullus, and Pompey.

Answer 3.—The Achæan league had subsisted in Greece from the earliest ages; but the part which it had hitherto taken in the affairs of Greece was either very unimportant, or was obscured by superior parts of Sparta, Athens, and Thebes. But when these states successively lost their supremacy, Achæa rose into notice.

The principle of union between the different cities of Achæa was the same, as it now exists, among the Swiss Cantons, and among the United Provinces of America; that is, each city was governed by its own particular laws and usages, but all public affairs were decided in national assemblies.

With the destruction of Corinth we may date the termination of Achæan league, which was finally absorbed in the vast empire of Rome.

The principal characters who figured in it were Aratus and Philopemen, the last of Grecian heroes, according to Cicero's judgment.

Answer 4.—The contending parties who opposed each other at the battle of the Metaraus were, Asrubal (the brother of Hannibal) and the Roman generals Nero and Livius, in which fortune gave the victory to the Romans, 206 B.C.

The battle of Mycale, off the coast of Ionia, between the Persians and the Greeks, under the Athenian Zairtephus and the Spartan Leotichides, gave such a fatal blow to the power of Persia that the Ionians were encouraged to throw off the galling yoke of king of kings, B.C. 425.

There were two battles off this promontory: the one in which the Greeks gained a partial victory over the fleets of Xerxes in 427 B.C.; the other in which the Spartan admiral Calicrates was defeated and slain by ten Athenian admirals.

The battle of Delian was fought between the Spartans and the people of Argos, in which the latter were completely defeated.

The field of Charonia was fatal to the liberties of Greece, because Phillip here obtained a bloody victory over the Athenians and Thebans.

The battle of Mantinea decided nothing; for both the Spartans and Thebans claimed the victory. In this engagement, Epaminondas, the first of the Greeks according to Cicero's judgment, lost his life, B.C. 362.

Answer 5.—The final division of the Roman empire took place under the sons of Theodosius, the Great Honorius and Arcadius, of whom the former became emperor of the West and the latter of the East. The Western division of the empire, with Roman for its capital, comprehended Italy, Gaul, Spain, England, Africa, Egypt, and Pannonia; and the Eastern division, with Constantinople for its capital, all those countries lately under the Turkish empire.

Answer 6.—The policy which Henry VII. pursued in his internal government was the depression of the ancient barons, and the elevation of the middling classes and the clergy: this he carried into effect by granting permission to the nobles to dispose of their estates, which the merchants and all those who had acquired wealth were easily enabled to purchase. Another method, by which he attempted to break in the power of nobles, was by the enactment of such laws which prohibited the nobles from keeping retainers in their service.

Answer 7.—The English princes in the 13th and 14th centuries embraced a notion of conquering France, or at least those portions of it which formerly belonged to the Norman line. In the prosecution of this idle plan they often came into contact with the French kings; and on one occasion had nearly completed the conquest of France, when their prey was wrested from them by a simple country girl.

The English lost their last hold in France in the reign of Mary. Without any provocation she declared war against Henry II. of France, in hopes of making a

diversion in favour of her husband, Philip II. of Spain. But all her hopes were frustrated; the French, under the celebrated Duke of Guise, besieged and took Calais in twelve days, which it had cost Edward III. eight months to capture; and thus the English finally lost their last possession in France in A.D. 1556.

Answer 8.—Although the House of Commons owes its origin to the usurpations of Leicester, yet it has been found one of the most effectual checks upon the power of kings. Leicester, in order to conceal his own usurpations, first issued writs to the counties and boroughs to return to Parliament two members from each county, and one or two from every borough. On his death, Edward, though a warlike prince, found the necessity of the support of the House of Commons to all his ambitious projects, and he thus established its legal title. Under Edward III. the House of Commons enacted those three laws which rendered their power permanent, viz., that no tax should be levied without the consent of the House of Commons; that any alteration in any law should have their concurrence; and that they should exercise the privilege of impeaching king's minister for bad government. The House of Commons had nearly lost its importance in the wars of the Roses, when, in the reign of Henry VIII., it was made the instrument of all his cruelties. Some spirit began to show itself in the reign of Elizabeth, and which further developed itself in that of her successor James I. "The Great Rebellion" decided the dispute, whether the king should govern with or without Parliaments; but it was decided in favour of Parliaments. The reign of James II. affords a curious spectacle to every reader of the constitutional history of England. The House of Commons boldly declared that James, by violating the fundamental laws of the realm, had abdicated the throne. Under the Hanoverian family were decided two questions, viz., the dispute between the constituents and their representatives, occasioned by the Middlesex election of Wilkes and the Reform Bill. By the latter Act, the right of returning members to Parliaments was extended to those cities which had hitherto remained unrepresented.

Answer 9.—There is nothing extraordinary or inanalogueous in the history of oriental despotism, when we say that both Sebaktigin and Nadir Shah raised themselves from the lowest states to the highest pinnacle of human grandeur. Both were slaves, and both became kings. The one was more ferocious and cruel than the other, and was at the same time well fitted to shine in troubled time. Both invaded India, of whom Subaktigin confined his incursions to the Punjab, while Nadir Shah carried his ravages as far as Delhi, marking his progress with devastation and bloodshed.

Sevagi, the founder of the Marhatta greatness, is a character, the like of which is scarcely to be found in the history of the world. Surrounded by powerful neighbours, Sevagi found means to enlarge his territories at the expense of the kings of Ahmednuggur, and Bijapore, and Golcon, and in the course of a few years gave importance to a race of men hitherto little known. The most important event in his life was his escape from the fort of Rhijor, where he was confined by the bigoted Arungzebe.

It is hard to decide whether Mohammed Toglak was perfectly in his senses. The evident signs of derangement is everywhere visible: in one of his capricious fits he orders the inhabitants of Delhi to remove their family, cattle, furniture, &c. to Dowlatabad, because he intended to make it the capital of his empire.

Answer 10.—The religious opinions of Akber are thus stated by a Persian writer: Akber himself believed in the existence of one deity, the author of all space and matter; but he could not go all the lengths he wished for the fear of offending his Mahomedan subjects. Akber, says the same writer, was extremely fond of hearing religious disputes, and would sometimes take an active part in them. He would engage Brahmins, Molnas, Jews, and Christian Missionaries to decide on the merits of their respective religions.

The revenue system of Akber was the same as is still to be found in some of the native states. The great reformer of the revenue system of the Moguls was Raja Fodarmul. He divided lands into three sorts, viz., those which require no fallows, those which after the expiration of four years, and those which are overflowed by inundations and waste-ground. The lands which required no fallows were required to pay one-third of the whole produce, which, if it were inconvenient to be paid in kind, was transmuted into money, according to the price of the commodity; the lands which required fallow were, in the same manner, required to pay one-fourth of their whole product. The waste-grounds were only to pay one-eighth of the whole, with the same conditions as before stated.

Answer 11.—The Romans first became acquainted with the oriental mode of fighting in their wars with the Syrian kings. The principal points in which it differed from their own lay in the organization of the two armies. The orientals place all their dependence on the cavalry, while the Romans generally made their infantry the instrument of their victories.

Answer 12.—The earliest records among uncivilized nations are the traditions, monuments and documents take in their place after tradition, and at last history appears. This may be finely illustrated from the Grecian history. Before the time of Herodotus it may with propriety be said, that there was no history, and its place was usurped by traditions.

(Signed) NOUROTON MULLICK.

Had I not repeatedly expressed my surprise in this paper at the intellectual powers manifested by the senior scholars in their examinations,—a surprise which I have no doubt will be shared by others, I should not have thought myself authorized to introduce the preceding lengthy extracts; but as the means to appreciate the bearing of general facts can only be obtained by a knowledge of details, I place before the public the answers of *several* of the senior scholars to the questions put to them, to prove that the reasonings and deductions are not simply those of a precocious individual, but are fairly and truly types of the capacity of the native mind.*

Madras.—Mr. J. R. Colvin, in a note to Lord Auckland's Minute on Education, dated 24th November, 1839, in which he reviews the existing state of education in India, says,—“Less would appear to have been effected for founding any advanced system of education in the Madras territories than in the other presidencies; and my notice of what has been done in these territories must, most probably from the defective materials immediately at command, be nearly a blank.”

The Court of Directors, in addressing the Madras Government, 29th September, 1830, say,—“You are, moreover, acquainted with our anxious desire to have at our disposal a body of natives, qualified by their habits and acquirements, to take a larger share and occupy higher situations in the civil administration of their country than has hitherto been the practice under our Indian Governments. The measures for native education, which have as yet been adopted or planned at your Presidency, have had no tendency to produce such persons.”

The blank noticed by the Court in 1830, and by Mr. Colvin in 1839, has been so far filled up, that Madras now boasts of one Government educational establishment, which has the sounding appellation of “University.” It is under the direction of a President, 12 Governors, 7 of whom are native gentlemen, 2 of them being Mahomedans and the other 5 Hindoos. The Governors have a European Secretary, Captain Pope. The object of the University is to “impart a large measure of the higher branches of science and literature among such of the better orders as may have or obtain the means and the leisure to profit fully by such a course of education, and with a view to their reasonable expectations of filling superior stations in life, or in the service of Government.”

A school-fee of 4 rupees per mensem is demanded; no scholars are admissible who are unable to read and write the English language intelligibly. A Proficient's degree is scarcely obtainable in less than four years' study, and the grades of honour are not lightly given. The

* The paucity of mistakes in the preceding answers; whether in language or orthography; is not less remarkable than the grasp of knowledge manifested.

consequence of these elevated views is, that, at the time of the Second Annual Report, in 1843, there were only 118 scholars. The University, in fact, consists of only a "High School," in four classes, to which there are four European tutors and four native teachers; and as it had, in 1843, been only two years in operation, the prescribed degree of proficiency had not been attained by any of the scholars, although many of them had attained a correctness and facility, as well in speaking as in composition, which befitted them for easy intercourse with the well-educated classes of English society.

A native gentleman, Putcheapah, having founded a public school, where 400 or 500 children are receiving instruction in reading and writing English, a preparatory school, auxiliary to the University, was given up, and two-thirds of the cost of its support, about 250 rupees per mensem, the Governors recommended should be devoted to the foundation of Government scholarships of 10, 7, and 5 rupees per mensem each, to be held for two years. The Court of Directors sanctioned the appropriation, and called the attention of the University Council to the advantage of regulating the studies of those holding the scholarships, with a view to their future employment as teachers at schools, which it is hoped will be organized in the districts. Putcheapah had also allotted funds for an endowment in the University, which the Council recommend should be given to 30 pupilships in the lowest class at 2 rupees per mensem, 15 scholarships in the High School at 4 rupees per mensem, and 3 studentships at 30 rupees per mensem, all to be held by Hindoos, the period of possession to be 4 years.

The University Council wished to establish two classes of medicine and civil engineering, and submitted plans for establishments, professors, officers, &c.; but as the Parliamentary grant for educational purposes at Madras only amounted to 50,000 rupees, it was found the funds were inadequate, and the plan fell to the ground.

The Governors say, that with respect to the organization of the High Schools of the provincial colleges, that there is a "promising earnest of success;" but that the "condition of the natives in the provinces, and the *total want* of public seminaries throughout, have rendered their operations in communication with those established in the districts somewhat slow; and it would be premature to discuss those arrangements which are only as yet in progress for the formation of the schools." The future, it is to be hoped, will produce more than the past.

The Appendix to the report contains the examination papers, commencing with Political Economy, in which the questions are—"Give a full account of the commercial or mercantile system;" "Explain how public debts originated;" and "Give an account of the Bank of Amsterdam." Then follow Conic Sections, Equations, Differential Calculus, Trigonometry, Euclid, and Algebra. Under the head Steam Engine, it is asked to calculate generally the point of suspension of the piston rod from the parallel motion, and to give a numerical example, with a diagram to illustrate it; and, secondly, to show how to find the latent heat of steam according to Watts' method. In Mechanics the pupil is asked "to explain the fusee of a watch." In Politics the question is asked, "What are the characteristic marks of a good Government?" and the answer is—"The main principle that characterizes

a good Government is, that the laws laid down for the guidance of the people are fixed, and the people living under it should be allowed to have a share in it. A good Government, in adapting a law to its ends and objects, always attends to the habits, feeling, and manners of the people. When a change is introduced into the Government it is always gradual; for it is well known that suddenness in change will at once excite the disgust of the people. There are various other marks of a good Government that are too obvious to require an elaborate detail."

The tests of qualifications of candidates for the public service are to be of three grades,—General Tests, Superior Tests, and Special Tests. The first to consist of a certified degree of proficiency in the English and native languages, in the knowledge of moral principles, in the elements of general history, and of the histories of England and India; in the elements of mathematics and practical astronomy, in arithmetic, in geography, and in the outlines of the constitution of the English and Indian Governments. The Superior Test to consist of a certified degree of proficiency in certain books and subjects of general literature and science, according to tests to be made out and approved of by Government. The Special Test to consist of a certified degree of proficiency in the subjects assigned for the General Test; and also, in addition, a proficiency in such books and subjects appropriate to certain respective departments in the public service, according to tests to be made out and approved by Government.

The following are the receipts and expenses of the University for three years:—

Abstract Account of the actual Disbursements of the Madras University, during the Official Year 1840—41, or from 1st August, 1840 to 30th April, 1841.

HIGH SCHOOL.		Rs.	A.	P.	Rs.	A.	P.
Amount paid the Establishment of the High School and Secretary's Department from 1st August, 1840 to 31st March, 1841, being nine months		9,702	2	10			
Ditto house-rent of ditto from ditto to ditto		2,170	0	0			
<i>Contingent Charges.</i>					11,872	2	10
Head Master's outfit		3,277	9	0			
School and office furniture supplied during the year		1,397	15	4			
Books and Instruments		1,413	6	8			
Stationery		289	12	8			
Advance for building eating-rooms for scholars		600	0	0			
Sundries		596	11	9			
Deduct,—		7,575	7	5			
School-fees realized from the pupils of the High School during the above period							
Fund transferred from the late Central School							
		344	9	4			
Net amount of contingent charges					7,230	14	1

Abstract Account of the actual Disbursements of the Madras University—
continued.

PREPARATORY SCHOOL.	Rs. A. P.	Rs. A. P.
Amount paid the Establishment of the Preparatory School from its first Establishment on 13th October, 1840 to 31st March, 1841 . . }	1,133 3 8	
Ditto house-rent from ditto to ditto }	481 4 0	
<i>Contingent Charges.</i>		
Books supplied during the above period . .	324 4 11	
Stationery	1 6 0	
Sundries	49 2 10	
	1,989 5 5	
Deduct,—		
School fees realized from the pupils of the Preparatory School during the year 1840-41 . . }	598 0 0	
Net amount of charge on account of the Preparatory School }		1,391 5 5
Total charges during the official year 1840-41 .	..	20,494 6 4

Abstract, showing the Advances received from Government on account of the Madras University, from 24th March, 1840 to 30th April, 1841, the actual Disbursements during the same period and the balance of Cash remaining on the 30th April, 1841.

	Rs. A. P.	Rs. A. P.
Amount of advance received under the order of Government 24th March, 1840 }	10,000 0 0	
Ditto Order of Government, 2nd January, 1841 .	5,000 0 0	
Ditto ditto, 15th February, 1841 }	10,000 0 0	
Total Rupees . . . .	..	25,000 0 0
Deduct,—		
Disbursements as per abstract account from 1st August, 1840 to 30th April, 1841 . . . }	..	20,494 6 4
Balance of Cash on the 30th April, 1841, appropriate to future Disbursements . . }	..	4,505 9 8

Abstract Account of the actual Disbursements of the Madras University, during the Official Year 1841-42, or from 1st May, 1841 to 30th April, 1842.

HIGH SCHOOL.	Rs. A. P.	Rs. A. P.
Amount paid the Establishment of the High School and Secretary's Department from 1st April, 1841 to 31st March, 1842, being 12 months }	18,285 12 7	
Ditto house-rent of ditto from ditto to ditto . .	2,415 0 0	
		20,700 12 7

*Abstract Account of the actual Disbursements of the Madras University—
continued.*

		Rs.	A.	P.			Rs.	A.	P.
<i>Contingent Charges.</i>									
School furniture supplied during the year . . .		153	4	0					
Stationery		52	14	6					
Books and Instruments		3,761	7	1					
Printing		1,207	5	9					
Balance paid for building eating-rooms for } Scholars		12	9	7					
Sundries		495	3	7					
		5,682 12 6							
Deduct,—									
School fees realized from the pupils of the High School during the above period	2,988 0 0								
Ditto on account of Putcheapah's Scholars	124 0 0								
Value realized of High School Books lost	6 13 0								
Ditto by sale of materials used in fitting up the College Hall for the opening of the Institution . . .	104 4 0								
		3,223 1 0							
Net amount of contingent charges							2,459	11	6
<i>PREPARATORY SCHOOL.</i>									
Amount paid the Establishment of the Prepara- tory School from 1st April, 1841 to 31st March, 1842, being 12 months		3,060	13	1					
Ditto house-rent of ditto, from ditto to ditto . .		1,207	3	5					
<i>Contingent Charges.</i>									
Sundries	10 5 3								
Stationery	5 9 0								
		15 14 3							
		4,283 14 9							
Deduct,—									
School fees realized from the pupils of the Preparatory School during the years 1841-42	1,246 0 0								
Ditto on account of Putcheapah's Pupils	20 0 0								
		1,266 0 0							
Net expenditure on account of the Preparatory } School							3,017	14	9
Total charged during the official year 1841-42 .		..					26,178	6	10

Abstract, showing the Advances received from Government on account of the Madras University, from 1st May, 1841 to 30th April, 1842, the actual Disbursements during the same period, and the balance of Cash remaining on the 30th April, 1842.

	Rs.	A.	P.	Rs.	A.	P.
1841 Balance of Cash on 30th April, 1841, } appropriaible for the Disbursements of } the present year }	4,505	8				
Amount of advance received under order } of Government 8th June, 1841 . . }	10,000	0	0			
Ditto ditto, 26th November, 1841 . . }	10,000	0	0			
1842 Ditto ditto, 24th February, 1842 . . }	10,000	0	0			
				34,505	9	8
Deduct,— Disbursements as per abstract account } from 1st May, 1841 to 30th April, } 1842 }	..			26,178	6	10
Balance of Cash on the 30th April, 1842, } appropriaible to future Disbursements }	..			8,327	2	10

Abstract Account of the actual Disbursements of the Madras University, during the first Six Months of the Official Year 1842-43, or from 1st May, 1842 to 31st October, 1842.

	Rs.	A.	P.	Rs.	A.	P.
HIGH SCHOOL.						
Amount paid the Establishment of the High } School and Secretary's Department from 1st } May, 1842 to 31st October, 1842 . . . }	9,553	14	2			
Ditto house-rent of ditto from ditto . . . }	1,050	0	0			
				10,603	14	2
<i>Contingent Charges.</i>						
Books }	1,507	4	11			
Stationery }	282	10	11			
Printing }	12	4	0			
Sundries }	534	5	4			
Scholarship for two months at 30 rupees per } month }	60	0	0			
	2,396	9	2			
Deduct,— School-fees realized from the pupils } of the High School during the } above period. }	1,716	0	0			
Ditto on account of Putcheapali's } Scholars }	340	0	0			
	2,056	0	0			
Net amount of contingent charges }				340	9	2

Abstract Account of the actual Disbursements of the Madras University—
continued.

PREPARATORY SCHOOL.		Rs.	A.	P.	Rs.	A.	P.
Amount paid the Establishment of the Prepa-	ratory School for the above period . . . }	1,566	0	0			
House rent		630	0	0			
		2,196	0	0			
<i>Contingent Charges, none.</i>							
Deduct,—							
School-fees realized from the pupils							
of the Preparatory School during							
the above period	496	0	0				
Ditto ditto received on account of							
Putcheapah's pupils	40	0	0				
		536	0	0			
Net amount of expenditure on account of the	Preparatory School }				1,660	0	0
Total charges during the first six months of	the official year 1842-43 }	..			12,604	7	4

Abstract, showing the Advances received from Government on account of the Madras University, from 1st May, 1842 to 31st October, 1842, the actual Disbursements during the same period, and the balance of Cash remaining on the 31st October, 1842.

	Rs.	A.	P.	Rs.	A.	P.
1842 Balance of Cash on 30th April, 1842,	8,327	2	10			
appropriable for the Disbursements of						
the present year }						
Amount of advance received under the						
order of Government dated July 26th,	10,000	0	0			
1842 }				18,327	2	10
Deduct—						
Disbursements as per abstract account,	..			12,604	7	4
from 1st May to 31st October, 1842 . }						
Balance of Cash on 31st October, 1842,	..			5,722	11	6
appropriable to future Disbursements }						

Errors Excepted.

Madras, 31st October, 1842.

(Signed)

P. POPE, Secretary.

Bombay.—In Bombay, the Government Institutions are under the management of a Board of Education. On the 31st March, 1843, this Board consisted of a President, five members, and a secretary; three of the members were European gentlemen, one a Parsee gentleman, one a Hindoo gentleman, and one a Mahomedan gentleman. A maximum sum of 1,25,000 rupees is fixed for educational purposes under the Bombay Presidency; and the Board control a sum of 20,000 rupees, constituting the Sanscrit College Fund. The official report to Government of the state of education under the Bombay Presidency for the

year 1842, from which the following facts are derived, is of a practical business-like character; and the views expressed of the media through which instruction should be imparted to the natives—from the reading, writing, and arithmetic of the elementary village schools to the erudition and science of the College—appear to be just and rational. Unlike the Madras Presidency, they have begun at the beginning; and express their conviction that the *primary instruction* of the people should be conducted exclusively in the vernacular language of the respective provinces; and they look for their success to the co-operation of local committees of the natives, to the provision of school houses by them, and to the payment of a fee by the pupils; and on their part to the provision of *well-trained masters*, supplying school books, and the ultimate formation of village libraries. The English schools are the next step, and are for those with higher aspirations than can be realized in the primary schools; but a condition of admission is, that the pupils shall have *passed through the vernacular schools*. Here a wide field of knowledge is open to them; but to those who desire to qualify themselves for scientific professions, classes are yet wanting to enable them to do so. The Board in their report embrace the Elphinstone Native Education Institution, the Government English schools, the Poonah Sanscrit College, the Government District Vernacular Schools, the village schools in the Poorundhur district of the Poonah collectorate; the state of the indigenous schools throughout the Presidency, with a summary of the state of education generally; notices of the local committees for the supervision of the Government District Vernacular Schools; the preparation of a series of class books for English and Vernacular Schools; state of the book depositories; financial statements; together with an Appendix of detailed Reports, Returns, &c.

The Elphinstone Native Education Institution originated in the profound veneration of all classes of natives under the government of the Hon. Mountstuart Elphinstone for that distinguished individual; and the most appropriate manner in which they thought they could testify this veneration, was by the subscription of very large sums of money to found a College, for the instruction of the natives, to be designated the Elphinstone College. Subsequent events rendered it desirable to alter this designation to the "Elphinstone Native Education Institution." It has its European professors and native tutors. Independently of the Elphinstone scholarships, it has others, founded in the names of Chief Justice West and Lord Clare. A class of scholars is introduced, called "Normal," whose duties are partly to study, and partly to teach. The institution has an upper and lower division in the English department, and the Vernacular department. The upper English is confined to the Elphinstone scholars, the Normal scholars, and the West and Clare scholars, and the number consisted of 30. The standard of acquirements for this department, which has been considerably raised, consists of a prescribed amount of knowledge of Mathematics, Natural Philosophy, Mechanics, Chemistry, Political Economy, and History. The examinations are rigid, and the Board say, that the merit of the written answers is, they think, not inferior, for the most part, to the specimens published in the reports of other analogous educational institutions in India. In the lower division, English and arithmetic are taught. The attendance in 1841 was 618, and in 1842, only 587; the falling off

being attributed to the increased strictness and discipline of this class; the falling off in numbers was compensated for by positive benefit in the aggregate; 304 of the pupils in this class pay a fee.

In the Vernacular department, the attendance in 1841 was 785, and in 1842 it was 719, being a decrease of 66. This also was attributed to the increased strictness maintained. The Board attribute so much importance to a proper value being fixed on the mind of the pupils, of the education they receive, that they ordered a fee of 2 annas, or 3*d*. English monthly, to be exacted from each of the pupils, to commence in January, 1843.

At the end of 1842, the vacancies in the scholarships were 7 Normal, 9 West, and 11 Clare; total 27. This was chiefly owing to the numbers who had found situations, and had left the Institution.

With a view to judge of the practical good conferred by the Institution, the Board had traced the career of 156 of its scholars subsequently to their leaving the Institution, between 1827 and 1842; and it gives a list of them and of the situations they then filled; amongst them are the sons of some of the Jaghirdars, or chiefs of the Deccan; one is tutor to the Rajah of Kolapoor, and three others are assistants in the magnetic observatory, &c. In 1842, a native Mahratta gentleman presented to the Institution 1,000 rupees, the interest of which was to be given annually as a prize to the scholar who had attained the greatest proficiency in the Mahrattée language. It was adjudged to a lad, Dhoondoo Janardhun, for the best Mahrattée essay on "Procrastination," in imitation of Miss Edgeworth's popular tale, entitled "To-morrow."

The provincial *English* schools are those of Poonah, Tannah, Surat, and Panwell.

The following are the attendances:—

Poonah.				Tannah.				Surat.	
1841		1842		1841		1842		1842	
No.	Paying.	No.	Paying.	No.	Paying.	No.	Paying.	No.	Paying.
118	..	81	19	77	..	58	54	35	31

The Poonah schools had supplied 61 boys, whose qualifications had enabled them to find employment. The diminution in numbers both in the Poonah and Tannah schools was looked upon as temporary. The Surat school was only established on the 27th January, 1842, and was proceeding satisfactorily. The Panwell English school was in so inefficient a state that the Board recommended its abolition.

Sanscrit College.—It is, as its name implies, for instruction through Sanscrit. In 1841, there were paying 95, not paying 82; in 1842, paying 8, not paying 68. And in this period 17 stipendiary, and 51 non-stipendiary left the College; and 6 stipendiary and 37 non-stipendiary were admitted. The stipendiary system was modified with advantage; the allowance to the first class students being decreased from 7 rupees to 6 rupees per mensem. The Professor of Astronomy is a native, Vishnool Nursing Joshee. The Professor of Medicine is also a native.

Government District Vernacular Schools.—There are three divisions of these ; the 1st, under Mr. Eisdale's superintendence ; the 2nd, under Professor Harkness ; and the 3rd, under Ball Gungadhur Shastree ; but these were temporary arrangements. The divisions again are subdivided, and each subdivision has its inspector. Government only sanctions the establishment of a school, where the population amounts to 2,000 souls. The 1st division embraces the Collectorate of Poonah, Ahmednuggar, Sholapoor, and Kandeish.

At the end of the year 1841 there were 19 schools in the Poonah Collectorate, and in 1842 two more were established. The masters to these schools had been educated in the normal class at Poonah. The total number of boys in attendance in 1841 was 1138, and in 1842 it was 1241, independently of the two news schools. The state of these schools was on the whole satisfactory ; but the masters of five schools, in consequence of their backward state, were directed to join the normal class at Poonah for one year, and half their salary as master was deducted from them for that time. The minimum monthly salary to masters of *district* schools appears to be 10 rupees.

The vernacular school-books in use in Bombay are the objects of praise by the Bengal Government. They consist of translations into Mahrattée, Goojrattee, and Canarese, of treatises on algebra, geometry, trigonometry, grammar, geography, history, natural philosophy, general knowledge, and moral instruction.

Ahmednuggar Collectorate.—The number of schools in this Collectorate was 14 at the end of 1841. In 1842 two new schools were added. The masters of the new schools had been educated in the Poonah normal class. In 1841 the number of boys in attendance in the schools was 1125, and in 1842 the number was 1288. The schools were in a satisfactory state, only one of the masters being ordered to Poonah to study in the normal class.

Sholapoor Collectorate.—In 1841 and 1842 there were four Mahrattée and six Canarese schools. The attendance at the Mahrattée schools in 1841 was 316, and in 1842 it was 345 ; but in the quarter ending 30th September the number had fallen to 250.

The attendance in the Canarese schools in 1842 was 225. The Mahrattée schools were in an unsatisfactory state, owing to the inefficiency of the masters, three of whom were ordered to the normal class at Poonah, and threatened with their names being removed from the list of schoolmasters. Acting masters were sent from the normal class on 7½ rupees monthly only, although the ultimate salary of the schoolmaster at Sholapoor was to be 20 rupees per mensem. The Canarese schools were not progressing.

Kandeish Collectorate.—The first report is for 1842, when there were only two Mahrattée schools ; the attendance was 98 in the early part of the year, but only 80 in the last quarter. Here again it has been found necessary to send one of the masters to the normal class at Poonah.

2nd Division.—The second division comprises Guzerat and the Northern Konkan, including the Collectorates of Surat, Ahmedabad, Kaira, and Tannah. Generally the schools were backward and neglected, not having, in fact, had time to get into practical and efficient

working. By the establishment of local school committees, and a vigilant superintendence, it was expected that matters would soon improve.

Principal Collectorate of Surat, including Sub-Collectorate of Baroach.—In 1841 there were 14 schools, but in 1842 it was necessary to abolish one of these, and no new school took its place. The attendance of boys in 1841 was 866, and on the 30th September, 1842, it was 1142, exhibiting an increase of 276. In the Surat school, No. 1, in consequence of the increased attendance, it was necessary to add assistant-teachers, at five rupees per mensem! Such a small remuneration will, no doubt, excite surprise in Europe.

Ahmedabad Collectorate.—The schools in this Collectorate amounted only to six in 1841, and no increase had taken place in 1842. The attendance in 1841 was 295, and on the 30th September, 1842, it was 414, being an increase of 118. The master of the school No. 1, in the city of Ahmedabad, had creditably distinguished himself by the translation from the Mahrattée version into Guzeratee of “Conversations on Natural Philosophy.”

Kaira Collectorate.—The number of schools remained stationary, being seven. The attendances in 1841 were 308, and on the 30th September, 1842, the number was 456, being an increase of 148.

Northern Konkan, Tannah Collectorate.—All the schools, 10 in number, are Mahrattée. The boys in attendance in 1841 numbered 670, and on the 30th September, 1842, the number was 661. As a reward to one of the schoolmasters, his salary had been raised from 12 to 15 rupees per mensem. Another has had his reduced from 12 to 10 rupees.

3rd DIVISION.—The third division includes the Southern Konkan and Southern Mahratta country.

Rutnagherry Collectorate.—In 1841 the number of schools was eight; in 1842 one was added, and four provisionally sanctioned. The attendance of boys in 1841 was 635, and on the 30th June, 1842, the number was 782, being an increase of 147. With the exception of two schools in a flourishing condition, the rest were backward and unpromising.

Southern Mahratta Country, Collectirates of Dharwar and Belgaum.—Some difficulties exist in these districts in furthering education, from the official language (Mahrattée) not being the language of the bulk of the people, and the corruption of the Canarese language by the Telinghee on the east, the Mahrattée on the north, Malabaree on the west, and the Dravidee on the south. The schools, however, with the exception of those at Dharwar, Hoobly, and Belgaum, are designated Canarese schools. They were in no respect better than indigenous village schools, the masters uneducated and incompetent, and with scarcely any Canarese school-books; and yet the masters were to teach Mahrattée and Canarese. Canarese being the language of the great bulk of the people, in the Canarese schools the Board ordered the teaching of Mahrattée to be discontinued, but that at the principal towns there should be schools established expressly to teach this language. A normal Canarese school had been established at Dharwar, and the next object of the Board was to supply school books, which was effected by

getting a committee of native Canarese gentlemen to superintend the translations into Canarese of the Mahrattée school books now in use.

Dharwar Collectorate.—In this Collectorate there are two Mahrattée and five Canarese schools. The attendance of boys in 1841 was 552, and in the quarter ending 30th June, 1842, the number was 531. One of the Canarese masters, from inefficiency, had been directed to join the normal class, and the operations of his school was, in consequence, suspended.

Belgaum Collectorate.—In this Collectorate there was one Mahrattée school and eighteen Canarese. The attendance in 1841 of boys was 822, and in 1842 the number was 669, being a diminution of 153, which was owing to the suspension of some of the schools, the masters being sent to the normal class.

General Summary of Government District Vernacular Schools for 1842.

	Number of Schools.	Number of Pupils.	Increase.	Decrease.
FIRST DIVISION.				
Poonah Collectorate	21	1,267	119	..
Ahmednuggar Collectorate . .	16	1,243	118	..
Sholapoor Collectorate . . .	10	505	..	66
Kandeish Collectorate	2	80	..	..
SECOND DIVISION.				
Surat Collectorate	13	1,142	276	..
Ahmedabad Collectorate . . .	6	414	118	..
Kaira Collectorate	7	456	48	..
Tannah Collectorate	10	661	..	9
THIRD DIVISION.				
Rutnagherry Collectorate . .	9	782	147	..
Dharwar Collectorate	7	531	..	..
Belgaum Collectorate , . . .	19	669	..	153
Total	120	7,750	826	228

In only two instances have school-houses been built by the people; in the other cases the schools are held in Government buildings, but it is the object of the Board to induce the people to keep these buildings in repair.

Fees by Scholars.—The Board, to test the sincerity of the inhabitants of towns petitioning for the establishment of schools, condition for the payment of a fee of one anna (three halfpence) monthly by each pupil; even this trifling sum is very irregularly paid; but the Board observe that in those schools where most fees are paid, such schools are found to be the most efficient and flourishing. In the province of Guzerat not a single fee is paid, while in some of the schools in the southern Mahratta country, some of the pupils pay a halfpenny, some a penny, and some the whole fee monthly.

The following is the return of the fees paid by the latest information :—

Collectorates.	Number in Attendance.	Fees Paid.
FIRST DIVISION.		
Poonah Collectorate . . .	1,267	265
Ahmednuggar Collectorate . .	1,243	291
Sholapoor Collectorate . . .	260	32
Kandeish Collectorate . . .	..	..
SECOND DIVISION.		
Tannah Collectorate	661	318
Surat Collectorate	1,142	..
Ahmedabad Collectorate . . .	413	..
Kaira Collectorate	456	..
THIRD DIVISION.		
Rutnagherry Collectorate . . .	782	144
Dharwar Collectorate	531	103
Belgaum Collectorate	669	150
Total	7,504	1,357

Village Schools in the Poorundhur District of the Poonah Collectorate.—In 1841 there were 69 village schools and 1322 pupils, and in 1842 there were 68 schools and 1233 pupils, being a decrease of 89. The schools were established to enable the farmers, few of whom can write or read, to acquire a knowledge of accounts to protect themselves from fraudulent exactions. In reference to the population of this district, it would appear that somewhat less than half the male children between five and ten years of age were receiving instruction.

Indigenous Schools.—With a view to obtain a knowledge of the number and state of the indigenous schools, the Board has circulated forms to the different collectors to be filled up; owing to the inaccuracies in some of the returns, the Board defer sending in the whole of the statistical details; but for the sake of comparison with some of the districts in Bengal, the trustworthy parts of these returns are supplied.

Bombay Collectorates.	Total Number of Male Children between 10 and 5 years of Age.	Number of Male Children under Instruction in the Indigenous Schools.	Number of Male Children under Instruction in Government Schools.	Total Number of Males under Instruction in Indigenous and Government Schools.	Male Children between 10 and 5 years of Age, not receiving Instruction.	Proportion of Male Children capable of receiving Instruction to Male Children actually receiving instruction as 100 to
Rutnagherry . . .	17,564	2,197	782	2,979	4,585	16·9
Tannah	30,118	3,821	661	4,482	25,636	14·7
Poonah	31,979	3,195	2,460	5,655	26,321	14·5
Ahmednuggar . . .	42,796	4,708	1,125	5,833	36,963	13·6
Belgaum	25,463	2,386	669	3,055	22,408	16·3
Kandeish	16,615	2,571	250	2,821	13,794	16·0
Surat	16,373	3,002	630	3,632	12,741	22·4
Kaira	28,823	3,460	466	3,926	24,897	13·5
Ahmedabad . . .	25,174	6,674	413	7,087	18,087	28·1
					Average	17·3

The means of comparison with Bengal is afforded by a statement of Mr. Adams, relative to education in the city and district of Moorshedabad ; and the districts of Beerbhoom, Burdwan, South Behar and Tirhoot.

	Total Number of Children between 14 and 5 years of Age.	Number of Children receiving School Instruction.	Number of Children receiving Domestic Instruction.	Total Number of Children receiving Instruction.	Children receiving no Instruction.	Proportion of Children capable of receiving to Children actually receiving Instruction is as 100 to
City of Moorshedabad	15,092	950	300	1,259	13,838	8·3
Thana Dowlutbazar .	10,428	305	326	631	9,797	6·05
Thana Nangler . .	8,929	489	285	724	8,205	8·7
Thana Calna . . .	18,176	2,243	676	2,919	15,257	16·05
Thana Jehanabad .	15,595	366	539	905	14,690	5·8
Thana Bhawara . .	13,409	60	288	348	13,061	2·5
					Average	15·5

Mr. Adams' first column includes female children, whose education, however, is a blank ; and considering them to be one half, to admit of a comparison of the last column with the Bombay results, it will be necessary to double the proportion on the 100 ; this brings it to 15·5 boys educated on every 100, while the Bombay returns give 17·3. Of this number, 15 per cent. are instructed in the indigenous schools, and only 2·3 per cent. in the Government schools. Female education is almost unknown, although the Missionaries have some girls' schools as well as boys, not included in the above.

The hospital and college most munificently founded in Bombay, by that remarkable philanthropist Sir Jemsetjee Jeejeeboy, and the Grant Medical College, founded by subscription, to do honour to the memory of the late Governor, Sir Robert Grant, are yet scarcely in operation, but will be productive of great good. Such is the state of education under the Bombay Presidency, comprising more than six millions of souls. It is not very extensive nor flattering at present ; but the system has a vitality which argues favourably for the future. Objects to be attained are distinctly defined, and the organization to attain these objects, appears sound and practical ; and the zeal manifested by the Board, if persevered in by their successors, can scarcely fail of producing favourable results.

Although not coming strictly within the objects of this paper, I should not be doing justice to Bombay were I to omit mention of the Society for the education of the poor, instituted in 1815, by the exertions of Archdeacon Barnes. It is for training up the children of Europeans in the principles of Christianity, and teaching them habits of industry. It has two schools, one for boys and the other for girls, in which are 327 children, most of whom are orphans of soldiers, and are boarded, clothed, and fed at the expense of the institution. District schools have been established at Surat and Tannah, and the Society admits native as well as European children. The expenditure has varied from 14,000 to 36,000 rupees per annum.

Elphinstone Native Education Institution. — Scholars in Vernacular Schools.

No. of Schools.	Castes.																				Remarks on the general attendance, from the Master's Register													
	Hindus.										Musulmans.																							
	M. Brahmans.	G. Brahmans.	Joshies.	K. Brahmans.	Shenoes.	Parbhus.	Khatries.	Soanars.	Sutaras.	Shimpis.	Kausars.	Vysyas.	Banias.	Bhangsalls.	G. Kumbis.	Sowanars.	Bhotias.	Marathas.	Dasai.	Chauti.		Boras.	Khojas.	Kokanis.	Surtis.	Kachit.	Shindh.	Dackhin.	Parsis.	Jews.	Total.	Maximum.	Minimum.	Average.
1	23	..	10	1	50	65	10	30	12	6	4	1	1	..	..	..	..	51	..	..	..	..	..	..	..	..	..	2	1232	7	20	13	Tolerably Regular
2	12	..	..	..	6	15	12	5	13	..	..	4	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	69	6	16	11	Ditto.
3	23	..	..	..	6	..	..	8	..	28	1	..	..	..	..	..	..	5	..	..	..	..	..	..	..	..	..	..	68	5	16	10	Ditto.
1	..	11	..	..	1	..	4	..	..	..	..	..	10	3	1	6	8	..	..	1	4	2	..	..	..	..	..	192	144	5	19	12	Regular.
2	..	2	1	2	..	3	2	..	1	3	89	99	5	18	11	Ditto.
3	10	10	2	12	1	2	..	1	3	38	69	5	18	11	Very Regular.
1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33	2	1	1	1	..	38	7	20	14	Irregular.

Elphinstone Native Education Institution. — Scholars in the English Department.

Description of Scholars.	Caste.																				Remarks on the general attendance, as learnt from the Master's File No. 1.										
	Hindu.																														
	Brahmans.	Joshis.	Shenoi's.	Parbh's.	Ugra do.	Kayastha do.	Khatris.	Sonars.	Sutar's.	Shimpis.	Kausars.	Vysnyas.	Banias.	Bhauasalis.	Marwadis.	Kunbis (Eng.)	Kunbis (Mar.)	Purdesis.	Madrasis.	Bhandaris.		Sarkara Jata.	Gaulis.	Parsis.	Portuguese.	Mussulmans.	Total.	Minimum.	Maximum.	Average.	No. who have paid the Fee.
Government School*	9	1	25	48	1	1	8	4	4	3	1	1	10	2	1	1	1	1	1	1	1	1	1	153	25	6	304	824	15	271	Except during the period when the late epidemic prevailed, the attendance has been, comparatively, regular.
Pay	34	2	10	27	1	1	10	16	4	7	8	..	2	..	..	1	1	1	1	1	1	1	1	82	27	17	253	..	..	..	..
Free	43	3	35	75	1	2	18	20	8	10	9	1	12	2	1	1	1	1	1	1	1	1	1	235	52	23	557	824	15	271	
Total . . .																															

* Including those not paid, sick and on leave, and left.

Scholars and monitors, (formerly Elphinstone Scholars)	9
Normal scholars	3
(Including one honorary scholar)	7
Clare di to	11
Total in Upper Division	20
Total in Lower Division	557
Grand Total	587

The time of the pupils in the English school is distributed as follows:—

1st SECTION.

From 10 to 11 A.M.	{ Monday, Wednesday, }	Vernacular, and English Vocabulary.
11 to 12½	{ and Friday. }	Writing,
From 10 to 11 A.M.	{ Tuesday, Thursday, }	Arithmetic.
11 to 12½	{ and Saturday. }	Vernacular Reading.

2nd SECTION.

From 10 to 11 A.M.	{ Monday, Wednesday, }	Vernacular and English Dialogues.
11 to 12½	{ and Friday. }	Writing.
From 10 to 11 A.M.	{ Tuesday, Thursday, }	Vernacular Reading.
11 to 12½	{ and Saturday. }	Arithmetic.

3rd, 4th, 5th, 6th, 7th, and 8th SECTIONS.

From 10 to 11 A.M.	{ Monday, Wednesday, }	Vernacular, and English Exercises.
11 to 12½	{ and Friday. }	Writing, and Book-keeping.
From 10 to 11 A.M.	{ Tuesday, Thursday, }	Writing.
11 to 12½	{ and Saturday. }	Arithmetic.

ALL THE SECTIONS.

From 1 to 4 P.M.	{ Every day, (Sunday and Holidays excepted. }	English Reading, Translation, Composition, Geography, and History.
------------------	---	--

UPPER OR COLLEGE DIVISION.

SENIOR CLASSES.

From 10 to 11½ A.M.	{ Monday, Wednesday, and Friday. }	{ Analytical Geometry, Integral Calculus, and Mechanics.
11 to 12½		{ Geography, and History.
1 to 3 P.M.		{ Engaged in teaching in the Lower Division.
3 to 4		Natural Philosophy.
From 10 to 11½ A.M.	{ Tuesday, Thursday, and Saturday. }	{ English Composition, Poetical Reading.
11 to 12½		{ Elements of Logic, Poetical Economy.
1 to 3 P.M.		{ Engaged in teaching.
3 to 4		Chemistry and Mineralogy.

JUNIOR CLASSES.

From 10 to 11 A.M.	{ Monday, Wednesday, and Friday. }	{ Elements of Natural Philosophy.
11 to 12½		{ Trigonometry, Differential Calculus, and Optics.
1 to 2 P.M.		{ Geography, and History.
2 to 3		First Division, Elements of Botany.
3 to 4		Second Division, Geography, Outlines of Marathee, and English History, and engaged in teaching.
From 10 to 11 A.M.	{ Tuesday, Thursday, and Saturday. }	{ Elements of Chemistry, and Mineralogy.
11 to 12½		{ Geography and History.
1 to 2½ P.M.		{ Poetical Reader, Translation, Composition, and the Elements of Logic.
3 to 4		Engaged in teaching.

I have already stated that it does not come within my object to notice other than Government Educational Institutions; but as a report on the Church Missionary Establishments in India has lately appeared, it may prove acceptable to subjoin a summary of the present state of the labours of the Society:—

Mission Establishment.							Calcutta North Mission.									
European Missionaries.	Indo-British Missionaries.	European Cateelists.	Indo-British Catechists.	Native Catechists and Teachers.	Indo-British Schoolmistresses.	Native Schoolmistresses.	Stations.	Communicants.	Attendants on Public Worship.	Seminaries.	Seminarists.	Schools.	Scholars, Boys.	Scholars, Girls.	Youths and Adults.	Sex not distinguished.
24	1	1	10	117	12	4	10	644	2180	8	204	45	2155	265	373	40

Madras Mission.										Bombay Mission.												
Clerical Secretary.	European Missionaries.	Indo-British Missionaries.	Native Missionaries.	European Catechists and Schoolmasters.	Indo-British Catechist and Schoolmaster.	Native Catechists and Teachers.	Stations.	Communicants.	Attendants on Public Worship.	Seminaries.	Seminarists.	Schools.	Scholars, Boys.	Scholars, Girls.	European Missionaries.	European Catechist and Schoolmaster.	Country born and Native Schoolmasters.	Stations.	Communicants.	Schools.	Scholars, Boys.	Scholars, Girls.
1	19	1	3	7	1	382	13	2103	13,995	3	99	194	4376	1081	6	1	20	2	3	20	882	2

Himalayan Mission.						Ceylon Mission.												
European Missionaries.	European Catechists.	Stations.	Schools.	Scholars, Boys.		European Missionaries.	Native Missionaries.	European Lay Agent.	Native Catechists and Teachers.	Native Schoolmistresses.	Stations.	Communicants.	Attendants on Public Worship.	Seminaries.	Seminarists.	Schools.	Scholars, Boys.	Scholars, Girls.
1	1	1	1	18		9	2	1	104	18	4	182	3870	3	65	82	2110	601

It will thus appear that Government have efficient auxiliaries in the Mission Establishment in promotion of Education in India. These scholars in India (independently of 2711 in Ceylon) amount to 8961, including 1348 girls, of which sex there is not one pupil in the Government institutions.

In concluding this paper on the Educational Institutions of India, I feel bound to observe that the present Governor-General of India, Sir Henry Hardinge, in a truly philanthropic and politic spirit, has resolved not only that successful students shall receive the reward of their labours, but that the State should have the advantage of their acquirements; he therefore on the 10th October, 1844, issued the following proclamation; and it will be seen that no time was lost in rendering it operative by an education notice to the public, published by the Secretary to the Council of Education on the 26th October, 1844, inviting parties to come forward who were desirous of profiting by the advantageous opportunities offered to them.

“ EDUCATION IN INDIA.—RESOLUTION.

“ The Governor-General, having taken into his consideration the existing state of education in Bengal, and being of opinion that it is highly desirable to afford it every reasonable encouragement, by holding out to those who have taken advantage of the opportunity of instruction afforded to them a fair prospect of employment in the public service, and thereby not only to reward individual merit, but to enable the State to profit as largely and as early as possible by the result of the measures adopted of late years for the instruction of the people, as well by the Government as by private individuals and societies, has resolved, that in every possible case a preference shall be given in the selection of candidates for public employment to those who have been educated in the institutions thus established, and especially to those who have distinguished themselves therein by a more than ordinary degree of merit and attainment.

“ The Governor-General is accordingly pleased to direct that it be an instruction to the Council of Education, and to the several local committees and other authorities charged with the duty of superintending public instruction throughout the provinces subject to the Government of Bengal, to submit to that Government at an early date, and subsequently on the 1st of January in each year, returns (prepared according to the form appended to this resolution) of students who may be fitted, according to their several degrees of merit and capacity, for such of the various public offices as, with reference to their age, abilities, and other circumstances, they may be deemed qualified to fill.

“ The Governor-General is further pleased to direct that the Council of Education be requested to receive from the governors or managers of all scholastic establishments, other than those supported out of the public funds, similar returns of meritorious students, and to incorporate them, after due and sufficient inquiry, with those of the Government institutions; and also that the managers of such establishments be publicly invited to furnish returns of that description, periodically, to the Council of Education.

“ The returns, when received, will be printed and circulated to the heads of all Government offices, both in and out of Calcutta, with instructions to omit no opportunity of providing for and advancing the candidates thus presented to their notice, and in filling up every situation, of whatever grade, in their gift, to show them an invariable preference over others not possessed of superior qualifications.

“ The appointment of all such candidates to situations under the

Government will be immediately communicated by the appointing officer to the Council of Education, and will by them be brought to the notice of Government and the public in their annual reports. It will be the duty of controlling officers, with whom rests the confirmation of appointments made by their subordinates, to see that a sufficient explanation is afforded in every case in which the selection may not have fallen upon an educated candidate whose name is borne on the printed returns.

"With a view still further to promote and encourage the diffusion of knowledge among the humbler classes of the people, the Governor-General is also pleased to direct, that even in the selection of persons to fill the lowest offices under the Government, respect be had to the relative acquirements of the candidates, and that in every instance a man who can read and write be preferred to one who cannot.

"Ordered that the necessary instructions be issued for giving effect to the above resolution, and that it be published in the official gazettes, for general information."

"October 10, 1844.

"With reference to the resolution of the Right Honourable the Governor-General, dated 10th October, 1844, relative to the employment under Government of all qualified persons educated in the colleges and schools, public and private, of Bengal, it is particularly requested that all governors or proprietors of Schools intending to take advantage of the benefits held out, will send in to the Secretary to Council of Education, with the least possible delay, complete returns of the Institutions under their charge; specifying their situation, the means of affording a complete education possessed by them, the number of masters or teachers employed, the number of pupils attending them, with a syllabus of the course of study pursued, and such other information as may enable the Council of Education to prepare the lists of candidates for public employments, required by the resolution above referred to.

"Further particulars relative to the amount of qualification required, and the nature of the examination to which all candidates for public employment must be subjected before they can be recommended to Government, will be made known hereafter.

"By order of the Honourable the President and Council of Education.

"F. J. MOUAT, M.D., *Secretary.*"

"*Council of Education, October 26, 1844.*"

Hints for improving the Condition of Agricultural Labourers. By the REV. THEODORE DURY, Rector of Westmill, Herts.

[*Read before the Statistical Section of the British Association at York, September 27th, 1844.*]

THE agricultural labourers of England are depressed by poverty, and degraded by ignorance; the former arises from the rapid increase of the population, the latter from their necessary employments. Their wages are kept down by rivalry, and the education of childhood is forgotten during boyhood for want of its exercise or continuance. Improvident marriages, without any prospect of employment, entail poverty and misery upon an unwelcome race of children. Uncertainty of bread produces despondency and recklessness of conduct, and whilst luxury and refinement are throwing their glittering nets around the highest

classes, the lowest are sinking deeper in despair, whence are engendered pilfering, daring robberies, incendiarism, and a deep-rooted desire for revolution. Expediency, humanity, and religion urge us to use means to check the destructive process, and to use our instant and utmost endeavours to better the condition of the poor.

As religion is the most energetic of all influences, and possesses the greatest power over the manners and habits of a nation, to promote an increased attention to it, must stand first in all plans for improvement. If agricultural labourers could be induced to attend religious worship with regularity, one step would be gained, but how to accomplish this desirable end, whether by shortening the service, or by more plain and interesting instruction, cannot be discussed on this occasion. Neither does the subject of education properly belong to this paper: it is to be hoped that parents will be induced to appreciate education for its own value, and not merely for the gift of clothes, which are made to the children as rewards for regular attendance. The design of these hints is to point out a few plans which have been found effectual in inducing the poor to help themselves.

1. A clothing club established in village schools is always found useful, and being managed by the schoolmistress, is productive of little trouble and much benefit.

2. The weekly sale of coals to the poor, at a reduced rate, throughout December, January, and February, is very conducive to their comforts, prevents pilfering wood, and by purchasing at the wholesale price, involves a trifling loss, which is easily covered by a parochial subscription.

3. Small allotments, not exceeding one rood to each family, at a rent of 10s., afford an addition to their scanty incomes, besides producing a good moral effect. Mr. Cowper's Bill of last Session, if it passes into a law, will be of the greatest benefit to the nation, and much gratitude is due to that gentleman for his exertions in preparing that measure.

The next plan to be mentioned is one which has been successfully tried by Captain Trotter, at Dyrham Park, near Barnet, of which the following particulars have been furnished by that gentleman himself.

Being very anxious to promote the religious improvement of his numerous farm labourers, he built a room for their use, in which they assemble for breakfast and dinner; a fire is provided for them in the winter, and seats are placed round the room, thus rest, warmth, and an opportunity of drying their clothes are afforded to them. Forty minutes are allowed for dinner, after which religious instruction is given them on alternate days, and opportunities of reading the Scriptures on the other days. The improvement in the conduct of the men since the adoption of this plan is most apparent. Bad words, swearing, or quarrelling are unknown amongst them. The general deportment of the men is so improved that Captain Trotter says it is really a blessed thing to have such servants now. This excellent example might be followed generally in large farms, and undoubtedly masters would find that such charity is twice blessed. It blesses him who gives and him that takes.

In some instances the comfort of labourers is increased by having a pint of warm milk given to each man at breakfast, to mix with his bread which he brings from home, thus affording him a warm and comfortable meal after three hours work.

Village libraries, farm libraries, and savings banks are deserving of warm encouragement, as being useful to the class of labourers, the former during winter afford instruction and amusement, and the latter during harvest a safe treasure-house for their additional wages, which in two many instances are invested in the beer shop and ale house.

The foregoing details may seem beneath the notice of many, and too trifling to occupy their attention, but life itself is made up of small things, and it is by attention to these that the comfort of life is improved, and the condition of man is raised.

On the Financial Economy of Savings' Banks. By J. W. WOOLLGAR.

[Read before the Statistical Section of the British Association at York,
September 28th, 1844.]

THE subject of this paper has acquired a sudden interest, through a recent Act of the Legislature, the true bearings of which are as yet very slightly known. The chief feature of that law is generally supposed to be a reduction of the rate of interest, yet a more important one is to be found in the scope now first given for economy in management.

As the law before stood, all banks were compelled to reserve 7s. 7½d. per cent. on their investments with the Commissioners, for the purposes of management; and in case there was a surplus, (as, in fact, there usually was,) it was to be returned to the Commissioners, and by them held without interest, though nominally it continued the property of the bank. By the present Act, the compulsory reserve is limited to 4s. 2d. per cent., thereby opening an important inquiry, which the managers of every bank must enter upon before the 20th November next. The necessity for doing this arises from their obligation to fix the rate of interest thereafter to be allowed to the depositors, a rate which (it will be conceded) ought to be regarded, as far as possible, as a permanent one.

Much uncertainty appears to prevail among managers; accompanied, however, with a desire to effect no greater reduction than is absolutely necessary. An insufficient knowledge of the requisite data, and of the bearings which they severally have upon the solution of the question, will (it is feared) induce not a few of these institutions to adopt a lower rate of interest than they ought to do, upon the principle of taking "the safe side." Such a result may perhaps be assisted by the interest tables recently issued from the office of the certifying barrister, (as a matter of accommodation to banks and not of injunction,) since these tables are applicable to no rate between 2l. 15s. 4d. and 3l. 0s. 10d. But managers should not allow themselves to be influenced at all by this circumstance; for tables at intermediate rates will doubtless be published, or they can be computed at a trifling cost. Moreover, in the application of any table, when a proper system of accounts is employed, it is quite immaterial whether the rate of interest be integral or fractional.

The statistical returns from the different banks, which are collected in Mr. Pratt's "*History of Savings' Banks*," do not include the *expenses of management*. There is no doubt that, if a comparison of these expenses were to be instituted, it would be found that some banks are conducted *savingly*, and others *extravagantly*, the extent of the variation being much greater than what ought to exist, when the simple mechanism of these institutions is considered.

In investigating the formula hereafter given, two propositions have suggested themselves, very desirable to be adopted by the managers of banks, as tending greatly (and especially the first) to effect a steadiness in the elements, and a constancy in the results, of calculation.

The data necessary to determine the future rate of interest to the depositors are, 1. The capital invested with the Commissioners. 2. The expenses of management, distinguishing those of a constant character from those which vary nearly in proportion to the extent of business. 3. The proportion (over and above the management fund existing at the beginning of any year) of money lying unproductive in the treasurer's hands, to be taken at a per centage upon the invested capital. 4. The incidental profit to the bank, arising from non-payment of interest on fractional sums, and for fractional times, and also for the period prescribed between notice of, and actual repayment of a deposit. Each of these items should be ascertained from the experience of the last five or seven years; and should the capital have varied considerably in the interval, the annual average obtained should be adjusted to what it probably would have been if the capital had always stood at its present amount.

Using then these symbols:—

r' = the interest of £1. for a year, at the new Government rate.

r = the like, to be allowed to the depositors.

f = the management fund at the closing of the present year's account.

h = the capital invested with the Commissioners.

$f + he$ = the treasurer's balance.

$h(1 + e)$ = the depositors' fund.

$p + hq$ = the year's expenses of management.

n = the profit arising from the course of dealing.

} at the same
period.

I find that the value of r , the rate of interest sought, is expressed by the following formula—

$$r = \frac{r' - q}{1 + e} - \frac{p - n}{h}.$$

Now, it is obviously of the greatest importance that the value in question should remain constant; and my object in using algebra for a purpose to which probably it has never before been applied was to see how far such an object was attainable.

An examination of the formula shows, that by far the greater part of the value resides in the first member of it; and this contains no quantities but what are either fixed, or in the power of the managers so to make them. The variation, then, practically resides in the second member, and if the numerator of that fraction could be deemed constant, the whole value would vary inversely as the capital of the bank, and so long as n remains less than p , (which I think may safely be assumed will be the case in practice,) the whole value of the formula will increase in a slight degree as the amount of capital increases, and *vice versa*. There is a little uncertainty inevitably attending the quantity n , which will render it desirable in practice to adopt a rate of interest less by a very small quantity than is furnished by the formula: two or three pence will in my judgment be sufficient for this end.

I will conclude by stating the two points which are so desirable for

securing steadiness in the financial condition of a Savings' Bank. First, that the expenses of management be limited to an amount, compounded of a fixed sum and a per centage on the invested capital; and (as a necessary consequence of such a rule) that the actuary's salary (which forms a large portion of those expenses) be regulated upon the same principle. This method will not only promote the principal end, but also will be found far more satisfactory than the common mode of extending salaries in an irregular and capricious manner. Secondly; that the sum allowed to remain in the treasurer's hands be limited to a per centage on the invested capital, in addition to the management fund. It is usual to fix by the rules an absolute limit, whence it has frequently happened, that the gradual enlargement of business has rendered that limit inapplicable, and the whole has been left to the treasurer's discretion. Hitherto such a practice has been attended with no other effect than to diminish the surplus fund; but managers should now be aware that altered circumstances require such a cause of diminished profit to be restricted within narrow bounds.*

I submit that, by a due attention to the principles illustrated in this paper, managers of Savings' Banks will be enabled to fulfil their duties satisfactorily; and with justice both to the officers and the depositors.

Tables of Accidents brought to the Stockport Infirmary, and attended by the House-Surgeon, in the Years 1833, 1834 and 1835. By SAMUEL GASKELL, Esq., formerly House-Surgeon to the Institution.

[Read before the Statistical Section of the British Association at York, September 27th, 1844.]

THE interest which has been excited with regard to the number and severity of accidents occurring in different trades, may render the results of a careful registry kept for some time in the above infirmary worthy of present publication. The population of Stockport, in 1831 and in 1841, was as follows:—

Townships.	1831	1841
Stockport	25,469	28,419
Brinnington	3,987	5,331
Heaton Norris	11,238	14,626
Total	40,694	48,376

From the very limited data which I possess for making any estimate of the number of persons employed, as compared with those unemployed. I should think it to be about 10,000, chiefly factory operatives; which number is stated, however, only as an approximation.

Between August 1833 and May 1835, 569 Accident Patients were brought to the Stockport Infirmary, in whom the cause and nature of the injury were recorded.

326 not in factories:
 237 men.
 89 women.

243 in factories:
 155 men.
 88 women.

* I am of opinion that the affairs of a Bank need reformation if it be found that the management expenses exceed $80 + \cdot 00225 h$, or the treasurer's balance is on an average greater than $f + \cdot 0075 h$.

243 Accidents in Factories :—55 Males, 88 Females.**MALES.**

- 92 lacerations :
 56 lacerations of the finger & thumb.
 15 lacerations of the hand.
 7 lacerations of the arm.
 7 lacerations of the scalp.
 4 lacerations of the face.
 1 laceration of the thigh.
 1 laceration of the knee.
 1 laceration of the scrotum.
 28 fractures :
 2 simple fracture of finger.
 14 compound fracture of finger.
 1 compound fracture of wrist.
 6 simple fracture of arm.
 1 simple fracture of tibia.
 1 compound fracture of ankle.
 1 compound fracture of cranium.
 2 not stated.
 16 contusions.
 19 sundry injuries.

155

FEMALES.

- 53 lacerations :
 33 lacerations of fingers & thumbs.
 6 lacerations of the hand.
 9 lacerations of the arm.
 5 various.
 14 fractures :
 10 compound fracture of finger.
 1 compound fracture of wrist.
 1 simple fracture of arm.
 1 simple fracture of tibia.
 1 compound fracture of leg and thigh.
 13 contusions.
 8 sundry injuries.

88

326 Accidents not in Factories :—237 Males, 89 Females.**MALES.**

- 86 contusions.
 43 fractures :
 1 base of skull.
 1 fractured skull.
 5 compound fracture of finger.
 3 fractured metacarpal bones.
 12 fractured arms.
 10 fractured clavicles.
 1 fractured tibia.
 4 fractured thighs.
 1 fractured ankle.
 1 fractured toes.
 1 fractured ribs.
 3 not stated.
 42 lacerations (14 of them of the scalp.)
 12 incised wounds.
 7 scalds.
 5 burns.
 5 dislocations.
 37 sundry injuries.

237

FEMALES.

- 34 contusions.
 14 fractures :
 1 compound fracture of finger.
 7 fractured arms.
 3 fractured clavicles.
 1 fractured fibula.
 2 not stated.
 11 lacerations (4 of them of the scalp.)
 6 scalds.
 5 burns.
 19 sundry injuries.

89

A Table showing the manner in which the Accidents to Males (155 in number) occurred ; the parts of the machinery inflicting the injury, and the nature of the injury received.

- 14 caught by the straps :
 2 lacerated scalp.
 2 lacerated knees.
 3 lacerated fingers.
 3 fractures of the fore arm.
 1 contusion.
 3 injuries of the finger.
 4 caught whilst feeding :
 2 lacerated fingers.
 1 compound fracture of the finger.
 1 fractured arm.

- 3 caught by the shaft.
 3 caught between the rollers :
 1 compound fracture of fingers.
 1 lacerated hand.
 1 not defined.
 2 caught by the taker in :
 1 lacerated finger.
 1 lacerated hand.
 2 caught by the cards :
 1 lacerated hand.
 1 lacerated hand.

- 2 caught by the grinder:
 1 compound fracture of the thumb.
 1 contusion of the arm.
- 30 caught by the wheels:
 18 lacerated fingers.
 1 simple fracture of the finger.
 3 compound fractures of the finger
 2 lacerated hand.
 1 lacerated arm.
 1 lacerated lip.
 1 compound fracture of the skull.
 1 lacerated scrotum.
 1 contusion of the foot.
 1 not recorded.
- 2 caught by the callender:
 1 lacerated hand.
 1 lacerated finger and thumb.
- 2 caught by the trappets:
 1 lacerated hand.
 1 lacerated hand.
- 31 caught in various ways:
 13 lacerated finger.
 1 lacerated hand.
 6 lacerated arm.
 1 lacerated scalp.
 5 compound fractures of fingers.
 1 simple fracture of the finger.
 1 contusion of the wrist.
 1 contusion of the knee.
 2 unknown.

- 2 caught by the cylinder:
 1 compound fracture of the wrist.
 1 lacerated finger.
- 31 caught whilst cleaning:
 19 lacerated fingers.
 1 lacerated arm.
 1 laceration of the face.
 1 laceration of the scalp.
 2 contusions of the hand.
 2 compound fractures of the finger.
 1 fracture of the fore arm.
 1 compound dislocation of the ankle joint.
 3 not recorded.
- 27 injuries received in various ways:
 2 lacerated fingers.
 1 compound fracture of the finger.
 6 contusions.
 6 wounds of the hands and face.
 2 punctured wounds of the feet.
 2 fractured arm.
 1 dislocated elbow.
 1 sprain.
 1 abrasion of the arm.
 1 fractured tibia.
 1 lacerated thigh.
 3 not stated.

153

A Table showing the manner in which the Accidents to Females (88 in number) occurred; the parts of the machinery inflicting the injury, and the nature of the injury,

- 4 caught by the straps:
 1 lacerated finger.
 1 contusion of arm.
 1 contusion of hand.
 1 laceration and contusion.
- 21 caught in various ways:
 4 lacerated fingers.
 2 compound fractures of the fingers.
 1 contusion of the finger.
 3 lacerated hand.
 1 fracture of the wrist.
 1 fracture of the ulna.
 2 laceration of the arm.
 1 contusion of the thumb.
 1 contusion of the foot.
 1 laceration of the foot.
 3 undefined.
 1 contusion of the arm.
- 19 caught by the wheels:
 10 lacerated fingers.
 4 compound fractures of the fingers.

- 3 lacerated arm.
 2 undefined.
- 29 caught whilst cleaning:
 17 lacerated fingers.
 4 compound fractures of the finger.
 3 lacerated hand.
 2 lacerated arm.
 3 undefined.
- 15 injured in various ways:
 1 lacerated fingers.
 2 contusion of the hand.
 2 lacerated arm.
 2 contusion of arm.
 1 compound fracture of the leg.
 1 simple fracture tibia and fibula.
 2 contusion of the foot.
 2 wounds of the eye by the shuttle.
 2 undefined.

88

Table showing the Occupations of those to whom Accidents occurred in Factories.

	Males.	Females.		Males.	Females.
Piecers. . . .	24	..	Carders	17	6
Tenters	15	35	Strippers	7	..
Weavers	19	21	Feeders	7	3

	Males.	Females.		Males.	Females.
Doffers . .	3	..	Grianders . .	2	..
Roller Camers. .	2	..	Winders . .	..	2
Dressers . .	2	..	Sundries . .	41	14
Cleaners . .	5	..			
Blowers . .	4	..	Total	155	88
Spinners . .	7	7			

Ages of the Patients the Accidents to whom occurred in Factories.

MALES.—Accidents.				FEMALES.—Accidents.					
Of	5 years	1	Of 20 years	4	Of	3 years	1	Of 20 years	4
7	„	1	to		6	„	1	to	
8	„	3	25	„ 14	8	„	1	25	„ 6
9	„	5	to		9	„	1	to	
10	„	12	30	„ 5	10	„	2	30	„ 4
11	„	15	to		11	„	10	to	
12	„	12	35	„ 2	12	„	14	35	„ 2
13	„	14	to		13	„	5	to	
14	„	18	40	„ 2	14	„	13	40	„ 2
15	„	8	to		15	„	2	Upwards	4
16	„	11	45	„ 4	16	„	4		
17	„	3	to		17	„	3		88
18	„	11	50	„ 2	18	„	7		
19	„	4	Upwards	4	19	„	2		
				155					

Table of Accidents not occurring in Factories, showing the proportion employed in Factories.

MALES.	FEMALES.
63 employed in factories.	30 employed in factories.
116 not employed in factories.	21 not employed in factories.
58 no occupation.	37 no occupation.
237	88

Nature of Injuries in Males.

5 incised wounds.	7 injuries to the eye.
26 contusions.	18 fractures.
6 undefined.	2 strain.
2 injuries to the eye.	6 incised wounds.
4 scalp wounds.	3 scalds.
2 dislocations.	3 compound fractures.
2 burns.	7 scalp wounds.
5 fractures.	13 lacerations.
9 lacerations.	43 contusions.
1 compound fracture.	4 dislocations.
1 abrasion.	10 various injuries.
36 employed in factories.	116 not employed in factories.

Ages of those (Males only) to whom Accidents occurred, not in Factories, but to parties employed in Factories.

Of 9 years of age	3 accidents.	Of 19 years of age	5 accidents.
10 „	4 „	21 „	3 „
11 „	3 „	22 „	2 „
12 „	4 „	24 „	1 accident.
13 „	6 „	26 „	1 „
14 „	6 „	29 „	2 accidents.
15 „	6 „	Upwards	10 „
16 „	5 „		
17 „	1 accident.	Total	63
18 „	1 „		

Table of Accident Out-patients relieved in the Manchester Royal Infirmary.

	Caused by Machinery.	From various other causes.
1839	490	2057
1840	590	2428
1841	814	2537
1842	962	2426

STATE OF THE PUBLIC HEALTH IN THE LAST QUARTER.

"The quarterly returns are obtained from 115 districts, sub-divided into 576 Sub-districts. *Thirty-four* districts are placed under the metropolis, and the remaining 81 districts comprise, with some agricultural districts, the principal towns and cities of England. The population was 6,578,912 in 1841."

40,729 deaths were registered in the quarter ending June 30th, 1845, which is 1,235 more deaths than were registered on an average in the corresponding quarters of five previous years. The increase of deaths is not, however, in proportion to the probable increase of the population. After the necessary correction, the mortality of the Spring Quarter is somewhat below the average.

Small-pox has prevailed epidemically in many districts; and the mortality from that disease has been considerable among children unprotected by vaccination. Several persons said to have been previously vaccinated, and one who had been inoculated, also died of small-pox. In many districts no deaths from small-pox occurred; in others the disease was introduced by migratory labourers, ill-provided probably with household comforts and conveniences. The neglect of vaccination is adverted to by several Registrars. The Registrar of *Leicester* says, "I have registered *fifty* deaths by small-pox from January 1st to June 30th, 1845; only *one* of the fifty persons had been vaccinated, and that was a doubtful case." The Registrar of *Heaton Norris, Stockport*, mentions that, "in one family, three infants, two sisters and a brother, all died of small-pox in the short space of eleven days." "Small-pox," observes the Registrar of *Great Marlow, Wycombe*, "has appeared in part of my district. I find on inquiry that a vast number of parents have not availed themselves of vaccination, although perfectly aware that it can be done free of expense." The number of deaths (143) in the Northern Sub-district of *Yarmouth* is much above the average, in consequence of the "prevalence of small-pox, which has proved fatal in 62 cases. Of this number 61 died without previous vaccination. One case only is recorded in which vaccination is said to have been performed; a midwife was the operator, and the patient was attended by an old woman. The child was two months old." *Measles* and *Scarlatina* have been epidemic in several districts.

The 11,267 deaths in the Metropolis are near the average of the season, if we allow for the increase of the population. The weekly deaths fell progressively in the quarter from 884 to 756, as the temperature rose. The deaths from *Small-pox* were 246—less by 235 than were registered in the previous quarter, but 102 above the average of the June quarter for five previous years. *One hundred and four* women died from childbirth in the metropolis within three months!

Districts in which the Mortality was ABOVE the average of five June quarters:—West, North, East, and South Districts of the Metropolis; Winchester, Northampton, Colchester, Ipswich, Yarmouth, Dorchester, Plymouth, Kidderminster, Dudley, Wolverhampton, Birmingham, Leicester, West Derby (adjoining Liverpool), Blackburn, Rochdale, Chorlton, Ashton, Bradford, Leeds, Merthyr Tydfil, Holywell, and Anglesey.

Districts in which the Mortality was BELOW the average of five June quarters:—Central District of the Metropolis, Devizes, Redruth, Penzance, Bristol, Hereford, Shrewsbury, Macclesfield, Liverpool, Preston, Bury, Wigan, Prescott, Sunderland, Tynemouth, Newcastle-on-Tyne, Kendal, Wrexham.

The mean temperature at Greenwich was 51° 9, which is 1° 1 below the average of the season. The north and north-east winds prevailing, the temperature of the whole month of May was below the average; but the wind turning south-west, the temperature of June rose above the average of the month. The fall of rain was nearly 5 inches (4° 8). At Derby more than 8 inches of rain fell in the same time.

MORTALITY OF THE COUNTRY.

Quarterly Table of the Mortality in 115 of the Districts of England, (including the principal Towns,) showing the Number of Deaths registered in the Four quarters of 1844, and in the quarter ending June 30th, 1845. Also the average Number of Deaths in the Five quarters, ending June 30th, 1840 - 1844.

DISTRICTS.	Popula- tion 1841.	1840-44		Deaths in the Spring Quarter ending June 30, 1845.	DISTRICTS.	Popula- tion 1841.	1840-44		Deaths in the Spring Quarter, ending June 30, 1845.
		Quarterly Average*					Quarterly Average*		
		Of Five Years.	Of Five June Quarters				Of Five Years.	Of Five June Quarters	
<i>Metropolis.†</i>					<i>North Midland Division.</i>				
West Districts .	301,326	1,758	1,701	1,843	Leicester . .	50,932	364	328	432
North Districts .	366,303	2,188	2,051	2,130	Lincoln . . .	36,110	192	200	202
Central Districts	374,759	2,307	2,117	2,056	Nottingham .	53,080	367	317	323
East Districts .	393,247	2,596	2,295	2,389	Basford . . .	59,634	322	342	350
South Districts .	479,469	3,099	2,691	2,849	Derby	35,015	228	214	206
Total . .	1,915,104	11,948	10,855	11,267	<i>North Western Division.</i>				
<i>South Eastern Division.</i>					Stockport . .	85,672	537	521	516
Maidstone . .	32,310	186	193	170	Macclesfield .	56,018	374	384	363
Brighton . .	46,742	270	249	218	Great Bough- ton (including Chester) . . }	49,085	298	301	293
Isle of Wight .	42,547	194	195	194	Liverpool . .	223,054	1,926	1,785	1,614
Portsea Island .	53,036	312	298	301	West Derby (adjoining Liverpool) . }	88,652	582	511	584
Winchester . .	23,044	121	110	140	Blackburn . .	75,091	478	497	526
Windsor . . .	20,502	96	95	98	Preston . . .	77,189	525	547	481
<i>South Midland Division.</i>					Rochdale . .	60,577	391	424	466
St. Albans . .	17,051	82	79	83	Bury	77,496	499	521	436
Wycombe . . .	34,150	192	213	192	Bolton	97,519	656	641	641
Oxford	19,701	100	87	86	Wigan	66,032	449	475	355
Northampton .	28,103	172	172	251	Prescott . . .	43,739	250	261	234
Bedford . . .	31,767	182	178	180	Chorlton . . .	93,736	616	564	647
Cambridge . .	24,453	151	143	147	Manchester . .	192,408	1,531	1,398	1,326
<i>Eastern Division.</i>					Salford	70,228	495	451	445
Colchester . .	17,790	108	105	125	Ashton . . .	173,964	1,133	1,162	1,381
Ipswich . . .	25,254	142	134	173	<i>York Division.</i>				
Norwich . . .	61,846	377	375	406	Sheffield . . .	85,076	556	513	513
Yarmouth . .	24,031	131	117	191	Huddersfield .	107,140	549	614	603
<i>South Western Division.</i>					Halifax . . .	109,175	581	607	6.6
Devizes . . .	22,130	123	129	108	Bradford . . .	132,164	824	865	1,107
Dorchester . .	23,380	114	109	135	Leeds & Hunslett†	168,667	1,096	1,081	1,177
Exeter	31,333	207	177	164	Hull	41,130	297	278	288
St. Thomas . .	47,105	216	203	231	York	47,779	278	293	297
Plymouth . . .	36,527	227	197	225	<i>Northern Division.</i>				
Redruth . . .	48,062	262	251	211	Sunderland . .	56,226	339	339	303
Penzance . . .	50,100	271	236	205	Gateshead . .	39,747	239	223	237
Bath	69,232	432	436	416	Tynemouth . .	55,625	313	314	295
<i>Western Division.</i>					Newcastle-on- Tyne . . . }	71,850	465	463	429
Bristol	64,298	479	461	419	Carlisle . . .	36,084	213	185	203
Clifton	66,233	386	383	375	Cockermouth .	35,676	166	161	174
Stroud	38,920	193	202	206	Kendal	34,694	176	202	186
Cheltenham . .	40,221	224	212	198	<i>Welsh Division.</i>				
Hereford . . .	33,646	198	188	168	Abergavenny .	50,834	319	361	352
Shrewsbury . .	21,529	142	137	118	Pont-y-pool .	25,037	137	159	150
Worcester . . .	27,130	160	151	150	Merthyr Tydvil	52,864	363	374	462
Kidderminster .	29,408	162	143	279	Newtown . . .	25,958	126	137	149
Dudley	86,028	528	500	551	Wrexham . . .	39,542	221	233	214
Walsall	34,274	205	186	180	Holywell . . .	40,787	204	208	280
Wolverhampton	80,722	524	497	541	Anglesey . . .	38,105	152	162	191
Wolstanton . .	32,669	211	212	228	Total exclu- sive of the Metropolis }	4,663,808	29,316	28,639	29,462
Birmingham .	138,187	912	809	859	Grand Total	6,578,912	41,264	39,494	40,729
Aston	50,928	290	275	291					
Coventry . . .	31,028	208	194	187					

* The last quarter in the Metropolis ended June 28, 1845.

† Waudsworth District is included in the return for the Metropolis.

‡ The former District of Leeds is now divided into the districts of Leeds and Hunslet both included in the present return.

MORTALITY OF THE METROPOLIS.

A Table of the Mortality in the Metropolis, showing the Number of Deaths from all Causes, registered in the 13 Weeks ending June 28th, 1845.

CAUSES OF DEATH.	Quarterly Average of Deaths in the 5 June Quarters, 1839-43.	Deaths in the Spring Quarter ending June 28, 1845.	CAUSES OF DEATH.	Quarterly Average of Deaths in the 5 June Quarters, 1839-43.	Deaths in the Spring Quarter ending June 28, 1845.
ALL CAUSES	10,960	11,267	III. Cephalitis	164	144
SPECIFIED CAUSES	10,912	11,231	Hydrocephalus	461	456
I. Zymotic (or Epidemic, En- demic, and Contagious) Diseases	1,993	1,885	Apoplexy	209	252
SPORADIC DISEASES.			Paralysis	189	191
II. Dropsy, Cancer, and other Diseases of uncertain or variable Seat	1,300	1,193	Convulsions	670	641
III. Diseases of the Brain, Spinal Marrow, Nerves, and Senses	1,887	1,938	Tetanus	4	7
IV. Diseases of the Lungs and of the other Organs of Respiration	3,340	3,478	Chorea	2	3
V. Diseases of the Heart and Blood Vessels	260	419	Epilepsy	50	49
VI. Diseases of the Stomach, Liver, and other Organs of Digestion	755	860	Insanity	12	16
VII. Diseases of the Kidneys, &c. VIII. Childbirth, Diseases of the Uterus, &c.	68 108	125 150	Delirium Tremens	22	23
IX. Rheumatism, Diseases of the Bones, Joints, &c.	77	85	Disease of Brain, &c.	106	156
X. Diseases of the Skin, Cel- lular Tissue, &c.	14	25	Laryngitis	7	12
XI. Old Age	795	744	Quinsey	18	14
XII. Violence, Privation, and Intemperance	314	329	Bronchitis	130	272
			Pleurisy	23	25
			Pneumonia	813	869
			Hydrothorax	54	54
			Asthma	198	203
			Phthisis or Consumption	1,919	1,819
			Disease of Lungs, &c.	178	207
			V. Pericarditis	11	29
			Aneurism	9	11
			Disease of Heart, &c.	240	379
			VI. Teething	205	163
			Gastritis	193	19
			Enteritis	17	37
			Peritonitis	61	128
			Tabes Mesenterica	3	4
			Worms	9	14
			Ascites	15	32
			Ulceration (of Intestines, &c.)	22	25
			Hernia	22	31
			Colic or Ileus	5	11
			Intussusception	7	6
			Stricture	6	11
			Hæmatemesis	50	65
			Disease of Stomach, &c.	13	24
			Disease of Pancreas	26	27
			Hepatitis	99	117
			Jaundice	1	2
			Disease of Liver, &c.	5	4
			Disease of Spleen	2	..
			VII. Nephritis	3	5
			Ischuria	5	10
			Diabetes	6	12
			Cystitis	44	87
			Stone	78	104
			Stricture	2	1
			Disease of Kidneys, &c.	3	8
			VIII. Childbirth	24	37
			Paramenia	1	2
			Ovarium Dropsy	34	31
			Disease of Uterus, &c.	43	52
			IX. Arthritis	1	3
			Rheumatism	1	2
			Disease of Joints, &c.	1	3
			X. Carbuncle	1	2
			Phlegmon	4	4
			Ulcer	5	5
			Fistula	4	11
			Disease of Skin, &c.	795	744
			XI. Old Age	7	15
			XII. Intemperance	3	3
			Privation	304	311
			Violent Deaths	48	36
			Causes not specified		
I. Small Pox	144	246			
Measles	355	322			
Scarlatina	325	201			
Whooping Cough	438	463			
Croup	99	83			
Thrush	49	45			
Diarrhoea	59	84			
Dysentery	12	17			
Cholera	5	2			
Influenza	25	11			
Ague	3	3			
Remittent Fever	6	7			
Typhus	400	308			
Erysipelas	65	80			
Syphilis	8	13			
Hydrophobia	1	..			
II. Hæmorrhage	40	28			
Dropsy	411	329			
Abscess	42	15			
Noma . . . . .	..	1			
Mortification	55	60			
Purpura	3	4			
Scrofula	29	41			
Cancer	106	151			
Tumor	19	2			
Gout	13	15			
Atrophy	76	136			
Debility	239	242			
Malformations	12	17			
Sudden Deaths	173	152			

REVENUE.

An Abstract of the Net Produce of the Revenue of Great Britain, in the Years and Quarters ended 5th July, 1844 and 1845; showing the Increase or Decrease thereof.—(Continued from p. 189).

Sources of Revenue.	Years ended July 5.			
	1844	1845	Increase.	Decrease.
	£.	£.	£.	£.
Customs	19,770,158	19,807,044	36,886	..
Excise	11,965,602	12,074,999	109,397	..
Stamps	6,518,063	6,846,883	328,820	..
Taxes	4,197,516	4,228,441	30,925	..
Property Tax	5,247,663	5,261,954	14,291	..
Post-Office	632,000	679,000	47,000	..
Crown Lands	145,000	125,000	..	20,000
Miscellaneous	493,140	658,819	165,679	..
Total Ordinary Revenue .	48,969,142	49,682,140	732,998	20,000
Imprest and other Monies.	187,703	410,145	222,442	..
Repayments of Advances .	1,063,833	973,571	..	88,262
Total Income	50,220,678	51,067,856	955,440	108,262
Deduct Decrease			108,262	
Increase on the Year			847,178	

Sources of Revenue.	Quarters ended July 5.			
	1844	1845	Increase.	Decrease.
	£.	£.	£.	£.
Customs	4,869,235	4,499,548	..	369,687
Excise	3,115,592	2,965,684	..	149,908
Stamps	1,705,033	1,837,076	132,043	..
Taxes	1,989,874	2,000,567	10,693	..
Property Tax	752,485	909,991	157,506	..
Post Office	153,000	155,000	..	..
Crown Lands	30,000	30,000	..	..
Miscellaneous	422,187	13,652	..	408,535
Total Ordinary Revenue .	13,039,406	12,411,518	300,242	928,130
Imprest and other Monies.	49,018	29,262	..	19,756
Repayments of Advances .	274,557	182,354	..	92,203
Total Income	13,362,981	12,623,134	300,242	1,040,089
Deduct Increase				300,242
Decrease on the Quarter				739,847

Consolidated Fund Operations.—The total income brought to this account in the quarter ended 5th July, 1845, was 12,888,133*l.*; the total charge upon it was 8,538,966*l.*; leaving a surplus of 4,349,167*l.* The amount of Exchequer Bills issued to meet the charge on the Consolidated Fund for the quarter ended April 5, 1845, and paid off out of the growing produce of that fund for the quarter ended 5th July, 1845, after deducting 600,000*l.*, paid off out of the Sinking Fund, was 2,337,529*l.* The probable amount of Exchequer Bills required to meet the charge on the Consolidated Fund in the quarter ended July 5, 1845, is stated at 2,254,433*l.*

CORN.

Average Prices of Corn per Imperial Quarter in England and Wales, with the Rate of Duty on Foreign and Colonial Wheat, during each Week of the Second Quarter of 1845; together with the Average Prices for the whole Quarter.—(Continued from p. 190.)

Returns received at the Corn Office, 1845.	Wheat.		Barley.	Oats.	Rye.	Beans.	Peas.	Date of Certificates of preceding Prices, regulating Duties for the Week ensuing.	Duties on Wheat, per Quarter.	
	Weekly Average.	Aggregate Average of Six Weeks regulating Duty.	Weekly Average.	Weekly Average.	Weekly Average.	Weekly Average.	Weekly Average.		From Foreign Countries.	From British Possessions out of Europe.
Weeks ended 1845	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.	s. d.
April 5 .	46 5	45 5	32 5	21 4	29 6	35 0	35 7	April 10	20 0	5 0
12 .	46 3	45 8	32 5	20 9	30 6	35 5	36 6	17	20 0	5 0
19 .	45 11	45 10	31 11	21 4	32 1	35 1	36 1	24	20 0	5 0
26 .	45 11	46 0	31 6	20 11	30 2	35 9	36 1	May 1	20 0	5 0
May 3 .	46 0	46 1	31 2	21 4	29 9	36 1	36 10	8	20 0	5 0
10 .	45 10	46 1	30 5	21 6	31 4	37 1	36 8	15	20 0	5 0
17 .	45 9	45 11	30 0	21 9	29 7	37 3	37 0	22	20 0	5 0
24 .	45 9	45 10	30 1	21 11	31 0	37 5	37 4	29	20 0	5 0
31 .	46 3	45 11	29 5	22 5	30 1	37 2	36 7	June 5	20 0	5 0
June 7 .	47 7	46 2	30 2	22 2	33 0	38 0	38 1	12	20 0	5 0
14 .	48 2	46 7	30 3	22 8	31 4	38 1	37 0	19	20 0	5 0
21 .	47 10	46 11	29 9	22 7	31 2	38 6	38 6	26	20 0	5 0
28 .	47 11	47 3	29 7	23 2	32 1	39 3	38 3	July 3	20 0	5 0
Average of the Quarter }	46 7	..	30 8	21 10	30 10	36 11	36 11	..	..	..

Foreign and Colonial Wheat and Wheat-Flour Imported in each of the Months ending 5th April, 5th May, and 5th June, 1845; the Quantities upon which Duties have been paid for Home Consumption during the same Months; and the Quantities remaining in Bond at the close of them.—(Continued from p. 190.)

WHEAT.

Months ended	Imported.			Paid Duty.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1845	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.
5th April	3,683 4	37 4	3,721 0	13,017 2	21 3	13,038 5	310,258 1	767 6	311,025 7
5th May	2,129 4	88 2	2,217 6	6,425 1	53 2	6,478 3	297,525 1	802 6	298,327 7
5th June	54,294 1	1,080 3	55,374 4	3,290 6	1,790 4	5,081 2	320,188 3	92 5	320,281 0

WHEAT FLOUR.

Months ended	Imported.			Paid Duty.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1845	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.	cwt. qrs.
5th April	84 0	6 0	90 0	320 1	4,707 0	5,027 2	236,830 0	6,712 2	243,551 2
5th May	1,437 0	1,301 3	2,739 0	136 3	2,830 2	2,967 2	233,652 2	5,171 3	238,825 1
5th June	716 2	..	716 2	348 3	2,661 0	3,009 3	230,505 0	2,510 2	233,015 2

CURRENCY.

BANK OF ENGLAND.

An Account, pursuant to the Act of the 7th and 8th Victoria, c. 32, for the Weeks ended on Saturday the 26th April, 24th May, 21st June, and 19th July, 1845.—(Continued from p. 191.)

ISSUE DEPARTMENT.

	Weeks ended, 1845.			
	26th April.	24th May.	21st June.	19th July.
	£.	£.	£.	£.
Notes issued	29,553,945	29,412,545	30,051,610	29,393,700
Government Debt	11,015,100	11,015,100	11,015,100	11,015,100
Other Securities	2,984,900	2,984,900	2,984,900	2,984,900
Gold Coin and Bullion	13,180,672	13,309,515	13,911,607	13,394,306
Silver Bullion	2,073,273	2,103,030	2,140,003	1,999,394
Total	29,253,845	29,412,545	30,051,610	29,393,700

BANKING DEPARTMENT.

Proprietors' Capital	14,553,000	14,553,000	14,553,000	14,553,000
Rest	3,176,289	3,101,461	3,140,557	3,234,238
Public Deposits	2,643,448	5,051,007	6,951,713	2,834,528
Other Deposits	10,781,657	1,087,531	10,147,586	10,934,390
Seven Day and other Bills	1,181,547	1,021,487	1,001,282	1,091,938
Total	32,335,921	33,904,486	35,794,198	32,648,139
Government Securities, including Dead Weight annuities	13,921,966	13,584,898	13,384,898	13,456,776
Other Securities	8,680,272	10,644,537	11,984,420	10,815,121
Notes	8,101,770	9,014,845	9,837,175	7,890,610
Gold and Silver Coin	631,918	860,206	587,705	485,632
Total	32,335,921	33,904,486	35,794,198	32,648,139

COUNTRY BANKS.

Average Aggregate Amount of Promissory Notes of Country Banks, which have been in Circulation in the United Kingdom, distinguishing the several Banks, or Classes of Banks, by which issued in each part of the Kingdom, during the four weeks ended 26th April, 24th May, 21st June, and 19th July, 1845.—(Continued from p. 191.)

Banks.	26th April, 1845.	24th May, 1845.	21st June, 1845.	19th July, 1845.
	£.	£.	£.	£.
England—Private Banks	4,681,211	4,623,189	4,399,110	4,478,744
Joint-Stock Banks	3,306,255	3,294,742	3,131,097	3,158,779
Scotland—Chartered, Private & Joint-Stock Banks	3,001,240	3,357,251	3,485,531	3,333,906
Ireland—Bank of Ireland	4,036,400	4,029,575	3,882,600	3,860,475
Private and Joint-Stock Banks	3,016,231	2,897,787	2,736,432	2,633,657
Total	18,041,337	18,202,544	17,634,770	17,465,501

BANKRUPTCY.

An Analysis of the Bankruptcies in England and Wales, gazetted in each Month of the Quarter ended June 30, 1845; showing the Counties and Branches of Industry in which they have occurred.—(Continued from p. 192.)

COUNTIES.	April.	May.	June.	TRADES.	April.	May.	June.
Metropolis . . .	43	24	29	<i>Agriculture and connected Trades.</i>			
Bedford . . . . .	..	..	1	Farmers . . . . .	..	..	..
Berks . . . . .	..	..	2	Agricultural Implement Makers and Wheelwrights. }	..	..	..
Bucks . . . . .	..	1	..	Corn Factors	2	..	1
Cambridge . . . . .	..	..	1	Millers and Malsters . . . . .	..	2	2
Cheshire	2	..	..	Hop Merchants . . . . .	..	..	..
Cornwall . . . . .	..	..	..	Brewers	3	1	..
Cumberland . . . . .	..	1	..	Horse and Cattle Dealers, and Woolstaplers . . . . . }	..	..	..
Derby . . . . .	..	..	..	<i>Mining and connected Trades.</i>			
Devon	1	..	2	Mining Firms . . . . .	..	..	..
Dorset	1	2	2	Blasting Works . . . . .	..	..	..
Durham . . . . .	..	1	1	<i>Manufactures.</i>			
Essex	4	1	..	Woollen Manufacturers	3	2	2
Gloucester	2	2	1	Cotton „	2	..	..
Hants	2	2	3	Linen „ . . . . .	..	..	..
Hereford . . . . .	..	..	..	Silk „ . . . . .	..	..	..
Hertford	1	1	..	Printers and Dyers	1	2	1
Huntingdon . . . . .	..	..	..	Lace Manufacturers . . . . .	..	1	..
Kent	2	4	1	Hosiery „ . . . . .	..	..	1
Lancaster	13	13	10	Hardware „ . . . . .	..	2	..
Leicester . . . . .	..	4	..	Earthenware „ . . . . .	..	..	..
Lincoln	1	..	1	Glass „ . . . . .	..	..	..
Middlesex (exclusive of the Metropolis) . }	1	1	1	Paper „ . . . . .	..	..	..
Monmouth . . . . .	..	..	..	Builders	5	2	2
Norfolk . . . . .	..	..	..	Miscellaneous Manufacturers. }	12	13	10
Northampton . . . . .	..	1	1	<i>Commerce.</i>			
Northumberland	3	..	4	Bankers and Merchants	1	4	2
Nottingham . . . . .	..	1	..	Shipowners, Warehousemen, Brokers, and Wholesale Dealers generally }	11	13	9
Oxford	1	..	..	<i>Retail and Handicraft Trades.</i>			
Rutland . . . . .	..	..	..	Bakers . . . . .	..	..	2
Salop	4	2	2	Butchers	3	1	2
Somerset (including Bristol) . }	3	3	5	Corn and Hay Dealers . . . . .	..	..	..
Stafford	4	4	1	Innkeepers and Victuallers	10	14	6
Suffolk . . . . .	..	1	2	Wine and Spirit Merchants	6	5	4
Surrey (exclusive of the Metropolis) . }	1	..	..	Dealers in Grocery, Drugs, and Spices }	7	8	8
Sussex	1	1	2	Makers of, and Dealers in, Clothing }	6	2	1
Warwick	1	5	2	Makers of, and Dealers in, Furniture }	2	5	1
Westmoreland . . . . .	..	..	..	Coach Builders	1	..	..
Wilts . . . . .	..	2	..	Miscellaneous	24	20	24
Worcester	1	4	..				
York (East Riding) . . . . .	..	1	..				
„ (North Riding) . . . . .	..	..	..	
„ (West Riding)	5	11	3				
Wales	2	4	1				
Total	99	97	78	Total	99	97	78

QUARTERLY JOURNAL
OF THE
STATISTICAL SOCIETY OF LONDON.

DECEMBER, 1845.

Fifteenth Meeting of the British Association for the Advancement of Science, at Cambridge, June 18th—25th, 1845. Proceedings of the Statistical Section.

THE Statistical Section, which had a good attendance of members, under the presidency of Earl Fitzwilliam, held its meetings in one of the lecture rooms in the great court of Trinity College. The following were its Officers and Committee.

President.—Earl Fitzwilliam, M.A. and F.R.S.

Vice-Presidents.—Lord Sandon, M.P.; Colonel Sykes, F.R.S.; Sir Charles Lemon, Bart., F.R.S.; and Professor Pryme.

Secretaries.—Joseph Fletcher, Esq.; Dr. W. Cooke Taylor.

Committee.—Shafto Adair, Esq.; Sir J. P. Boileau, Bart.; the Mayor of Cork; Colonel Everest; His Excellency Edward Everett; Henry Hallam, Esq.; James Heywood, Esq.; Eaton Hodgkinson, Esq.; Sir John Johnston, Bart., M.P.; M. Jullien; William Kelcher, Esq.; G. S. Kenrick, Esq.; Dr. Laycock; J. Lehmann, Esq.; R. Monkton Milnes, M.P.; William Neild, Esq.; the Bishop of Norwich; G. R. Porter, Esq.; J. P. K. Shuttleworth, Esq.; Samuel Turner, Esq.; Alexander Watt, LL.D.

The following papers occupied the attention of the Section.

1. The University Statistics of Germany from the materials of Dr. Perry of Göttingen, by James Heywood, Esq., F.R.S.

2. Comparative Tables of Degrees in Cambridge in the seventeenth and nineteenth centuries, by James Heywood, Esq., F.R.S.

3. Progress and present Condition of Savings Banks in the United Kingdom, by G. R. Porter, Esq., F.R.S.

4. Statistics of the Trade of Norway, by R. Valpy, Esq.

5. Liability to Insanity at Different Ages, by Dr. Thurnam.

6. Ancient System of Public Charities in London, by Joseph Fletcher, Esq.

7. Contributions to the Agricultural Statistics of Norfolk, by Sir J. P. Boileau, Bart., F.R.S.

8. Police Statistics of Manchester, by William Neild, Esq.

9. Provisional Report of the Committee on the Sanatory Condition of the City of York.

10. Production of Iron in Scotland, by Dr. Watt.

11. Colonization of the North of Ireland by the Corporation of London, by Joseph Fletcher, Esq.

12. On the different Modes of Estimating the Population of a Country, by Professor Pryme.
13. Universal Statistics, by M. Jullien.
14. Statistics of Small Pox, by Dr. Stark.
15. Statistics of Merthyr Tydvil, by G. S. Kenrick, Esq.
16. Vital Statistics of the United States, by Dr. Laycock.
17. Data for the Selection of Sites for Colonial Towns, by the Rev. Thomas Boys, M.A.

It was not deemed advisable to make any appeal to the Council for funds to carry out specific investigations. Mr. Porter, however, undertook, at the request of the Sectional Committee, to produce, against the period of its next meeting, a statistical view of the Iron Trade of Great Britain. The Committee further addressed a request to the Council of the Association, that the paper on Savings Banks by that gentleman, should appear in the next annual volume of the Association's Proceedings, among the Reports specially called for; a suggestion which received immediate approval on the part of the Council.

Contributions to Vital Statistics, especially designed to elucidate the Rate of Mortality, the Laws of Sickness, and the Influences of Trade and Locality on Health, derived from an extensive Collection of Original Data, supplied by Friendly Societies, and proving their too frequent Instability. By F. G. P. NELSON, Esq., F.S.S., F.L.S., Actuary to the Medical, Invalid, and General Life Office.

[Read before the Statistical Society of London, 17th March, 1845.]

1. *Duration of Life in England and Wales.*

THE best record of the general mortality in England and Wales is contained in the Annual Reports of the Registrar-General. So far as relates to the number of deaths in the entire community, more complete returns could not be hoped for.

The Fifth Report of the Registrar-General contains a table of the expectation of life, calculated on the mortality of the year 1841. The census of the population having been taken in that year, offered a ready means to determine the value of life for that period; but as the results of the mortality for several years would undoubtedly form a broader and more satisfactory basis on which to found a measure of the duration of life in this country, it is proposed to calculate a table on the Second, Third, Fourth, and Fifth Reports of the Registrar-General; omitting the First Report, that any imperfections incidental to the early management of the Registers may be avoided. It is evidently necessary to ascertain the exact amount of population living at various ages in the country, during the periods of time to which the returns of deaths relate, before results can be obtained, showing the ratio of the population dying at the respective ages.

Previous to the population being calculated for the mean time of each period embraced in the Second, Third, Fourth, and Fifth Reports, it will be necessary to apply a correction to the enumeration of the population at the period of the census.

In 1841, the ages of 35,408 males and 11,472 females, or 456 per

cent. of the one, and $\cdot 141$ per cent. of the other, were not given. In the registration of deaths, the ages of a certain proportion are also omitted; and if the ratio were the same in both cases, those whose ages were not specified might be left out, as the omission of the one would be corrected by the omission of the other; but it happens that, in the returns of deaths over the entire four years referred to, the number of males whose ages were not specified was only 1,650, or $\cdot 235$ per cent. of the whole; and of females 896, or only $\cdot 132$ per cent. of the whole female deaths. Independent corrections will, therefore, have to be applied to each class of results, namely:—

Let $y + \log. x = \log.$ of the actual number alive at the period of life x , provided the age of every person had been ascertained.

$y = \log. b. - \log. a.$

$a =$ population whose ages were ascertained.

$b =$ total population, and

$x =$ the number enumerated at any particular period of life.

This correction having been applied to the census of the population in 1841, and also to the census in 1821, the results obtained form the second, third, fifth, and sixth columns of the following table:—

TABLE I.

Corrected Enumeration of the Population of England and Wales for 1821 and 1841; with the Annual Rate of Increase during the Intermediate Period.

Ages.	MALES.			FEMALES.		
	Population 1821.	Population 1841.	Annual Rate of Increase.	Population 1821.	Population 1841.	Annual Rate of Increase.
Under 5	898,324	1,047,502	1·007711	884,866	1,057,926	1·00897
5 — 10	787,426	952,437	1·00955	779,516	951,687	1·01002
10 — 15	685,011	879,732	1·01258	650,342	851,649	1·01357
15 — 20	578,304	780,967	1·01513	611,741	805,090	1·01382
20 — 30	857,697	1,333,088	1·02229	1,029,526	1,498,751	1·01895
30 — 40	673,718	999,000	1·01989	741,881	1,051,505	1·01759
40 — 50	547,372	748,487	1·01577	572,227	777,500	1·01544
50 — 60	388,351	496,475	1·01235	402,245	529,274	1·01381
60 — 70	262,728	329,563	1·01039	284,624	369,498	1·01313
70 — 80	130,544	159,551	1·01008	142,366	184,468	1·01303
80 — 90	33,577	41,224	1·01031	41,480	53,164	1·01248
90 — 100	2,556	2,986	1·00776	3,747	4,967	1·01420
100 and upwards	68	82	1·00956	148	167	1·00628
Total	5,845,676	7,771,094	1·01415	6,144,709	8,135,647	1·01530

The Second, Third, and Fourth Reports of the Registrar-General gave the number of deaths in the year preceding the 30th June, 1839, 1840, and 1841 respectively; and the Fifth Report gave the deaths for the year ending 31st December, 1841. The next step required was to determine the population alive at various ages for the mean time of each of the given periods, that is, the population at the various terms of life in England and Wales on the 31st of December, 1838, 1839, 1840, and 30th June, 1841; and the following method was employed:—

Let β = the corrected population at a given age on the day of the census in 1821;

π = the same for 1841;

θ = the period elapsed since 1841.

$\text{Log. } \pi + \left(\frac{\log. \pi - \log. \beta}{20} \right) \theta = \text{log. of the population at the given term of life for the mean time of the period required.}$

The population for each of the periods being obtained in this manner for every term of life, the combined results form columns 2 and 5 of Table II.

Corrections, precisely similar to those applied to the enumeration of the population, were made on the registration of deaths; and the final results for the four years referred to are given in columns 3rd and 6th of Table II.

It may be observed here, that as the deaths happening in the last half of the year forming the fourth period of the Registrar-General, and those taking place in the first half of the year forming his fifth period, are identical, they will of course be included twice in the results now referred to; but as the population has also been taken for the mean of both periods or years, the proper relation is maintained between the population and deaths.

The preceding step was rendered necessary, from the Registrar-General having changed the period for his Annual Report from the 30th June to the 31st December, without having, at the time of making the change, distinguished the deaths belonging to each half year.

TABLE II.

Sum of the Population of England and Wales calculated for five successive periods, viz., for the 31st December, in the years 1838, 1839, 1840, and 30th June, 1841; with the Sum of the Corrected Deaths for the corresponding years as given in the 2nd, 3rd, 4th, and 5th Reports of the Registrar-General; and the Mortality per cent. during that period.

Ages.	MALES.			FEMALES.		
	Population.	Deaths.	Mortality per Cent.	Population.	Deaths.	Mortality per Cent.
Under 5	4,156,265	292,968	7.048	4,192,129	254,170	6.063
5 — 10	3,771,901	36,588	.970	3,767,019	35,494	.942
10 — 15	3,473,008	18,199	.524	3,358,717	19,175	.570
15 — 20	3,075,023	22,464	.730	3,174,272	26,003	.819
20 — 30	5,210,180	50,765	.974	5,878,257	56,298	.957
30 — 40	3,914,433	43,451	1.110	4,129,820	47,174	1.142
40 — 50	2,945,219	42,770	1.452	3,060,397	40,781	1.332
50 — 60	1,960,445	44,196	2.254	2,086,819	40,593	1.944
60 — 70	1,302,647	55,491	4.259	1,457,878	54,414	3.732
70 — 80	631,509	57,449	9.097	727,904	60,229	8.274
80 — 90	163,089	32,461	19.904	209,902	38,064	18.134
90 — 100	11,846	4,282	36.316	19,568	6,650	33.984
100 and upwards	325	137	42.154	662	311	47.277
Total	30,615,890	701,221	2.290	32,063,344	679,356	2.119

All the preceding corrections having been applied to the population and deaths, the combined results form Table II., the 4th and 7th columns of which show the mortality per cent. at the various terms of life for each sex in England and Wales during the four years referred to, and under that form constitute a complete measure of the value of life during the same period, in the general population of this country.

The 4th and 7th columns of the above table represent the rate of mortality at the mean age of that period of life opposite to which they are placed. More complete tables* were also formed by the method of third differences, and the necessary corrections being applied, a fair expression was obtained of the rate of mortality at each age, beginning with the age of 10, the number living to each subsequent year of life, the numbers dying in each successive year of life, and the specific intensity (the reciprocals of the rate of mortality per cent) of life, at each age.

The following are the principal results of the Tables here referred to. Both male and female life attains its highest specific intensity at the age of 14. Male life possesses a much higher specific intensity than female life up to the age of 25 inclusive; from that to the age of 38 the difference is very little, but generally in favour of male life; and from 38 upwards to nearly the extreme of life, the scale turns in favour of female life, and the specific intensity is higher throughout. At the age of 50 the two sexes attain their balance, the numbers surviving of each, from the age of 10, being equal. The nature of the specific intensity, in the preceding sense, must be clearly understood to refer to that period of life only to which it is affixed, and not to be any index to the general value of life; for it will be seen that although male life possesses a higher specific intensity up to the age of 38, still female life is of a higher absolute value throughout the whole of the same period.

Another Table† (see Abstract, Table III.) exhibits the Expectation of Life as deduced from the data already described; and without attempting anything like an elaborate comparison between it and other tables, hitherto regarded as a near approximation to the real measure of life, such observations only will be made as appear to be more intimately connected with the subject of this paper.

It is clear that a table formed from the data at present under consideration, will show the value of life in the country generally; all classes of society, from the highest to the lowest, being included; and it will therefore serve as a useful standard of comparison with the measure of life in individual classes of society, provided the rate of mortality in those classes can be determined.

In order to convey a general idea of the value of life as represented by this Table, it may be stated that it gives a greater expectation to males throughout the whole range of the Table, than is given in the Table at page xix of the Fifth Report of the Registrar-General:—

* This Table (Table C, p. 5) will be found in "Contributions to Vital Statistics, &c.," being a copy of the whole paper read before the Statistical Society, published by Hugh Cunningham, 193, Strand, 1845, 4to.

† Contributions to Vital Statistics, Table D, p. 7.

At Age 10 the difference is .68 of a year.				At Age 60 the difference is 1.00 of a year.			
"	20	"	.81	"	70	"	.44
"	30	"	.97	"	80	"	.15
"	40	"	.92	"	90	"	.15
"	50	"	.83	"		"	

The value of female life is also higher than female life in the Table of the Registrar-General; the difference of expectation in the two tables being:—

At Age 10 the difference is .57 of a year.				At Age 60 the difference is 1.12 of a year.			
"	20	"	.79	"	70	"	.81
"	30	"	.92	"	80	"	.44
"	40	"	1.01	"	90	"	.32
"	50	"	.98	"		"	

A comparison of the expectation of male life in the same Table with the Carlisle Table, which includes both sexes, shows a higher value of life in the Carlisle Table up to age 54. Again, from that age up to 75 the difference is very little, but generally against the Carlisle Table; and at 75 the Carlisle Table again crosses, and maintains a superiority till the extreme of life. The expectation of female life, however, is higher than the expectation of the Carlisle Table after 15 years of age. At the age of 88, however, they nearly coincide, and the Carlisle Table continues higher after that age.

A comparison of the mean of the expectation of male and female life, with the expectation of the Carlisle Table, yields the following results, namely,

At Age 10 the difference in favour of the Carlisle Table is				.75 of a year.	
"	20	"	"	"	.32
"	30	the difference in favour of England and Wales is			.29
"	40	"	"	"	.49
"	50	"	"	"	.34
"	60	"	"	"	.71
"	70	"	"	"	.35
Again at 80 the difference in favour of the Carlisle Table is				.09	
"	90	"	"	"	.29

So that the absolute difference throughout the whole course of both tables is very small, and the near approximation rather remarkable, considering the very different sources from which the data are derived. More minute comparison of those results with several of the best recognized Life Tables, is presented in Table III.

Much attention has of late been given to the supposed influence of locality on the duration of life; still no public means have yet been employed to solve the question correctly. For the progress of vital statistics it unfortunately happens, that the public records of this country are kept with very little regard to method or unity of plan. The Report of the Census may certainly in itself be regarded as a very complete document; and perhaps no other country possesses such excellent mortuary registers; yet for almost every purpose of exact calculation, both documents are nearly useless. No two things should have been more intimately related in design and classification, than the Census of the People and the Registration of Deaths. Still they seem to have been compiled without any regard to each other. For example, if it were required to compare any two counties in England—a manufacturing with an agricultural county—an inland

TABLE III.

Ages.	England and Wales, A.D. 1833—1841.		Milne, Carlisle, A.D. 1779—1787.	Deparcieux. Tontine Nominees, Both Sexes.	Demonferrand. France, A.D. 1817—1832.		Assured Lives.	
	Males.	Females.	BothSexes.		Males.	Females.	Equitable. Davies.	Amicable. Galloway.
10	47·76	48·38	48·82	46·83	47·00	47·42	48·83	.....
15	44·18	45·00	45·00	43·50	43·58	43·66	44·81	.....
20	40·69	41·60	41·46	40·25	40·00	40·08	41·06	.....
25	37·35	38·36	37·86	37·17	37·25	36·83	37·44	37·81
30	34·10	35·17	34·34	34·08	34·00	33·41	33·98	33·68
35	30·81	31·98	31·00	30·92	30·50	30·00	30·66	29·72
40	27·48	28·73	27·61	27·50	27·00	26·58	27·40	25·94
45	24·14	25·41	24·46	23·92	23·41	23·16	24·10	22·37
50	20·85	22·05	21·11	20·42	19·91	19·58	20·83	18·99
55	17·64	18·72	17·58	17·25	16·50	16·25	17·85	15·83
60	14·59	15·53	14·34	14·25	13·25	13·16	15·06	12·88
65	11·75	12·53	11·79	11·25	10·58	10·50	12·35	10·26
70	9·22	9·84	9·18	8·67	8·08	8·08	9·84	8·11
75	7·01	7·52	7·01	6·50	6·16	6·16	7·52	6·35
80	5·22	5·64	5·51	4·67	4·75	4·75	5·38	4·88

Ages.	Milne.					Duvillard. France, BothSexes.	Price. Northampton. A.D. 1735—1780. Both Sexes.
	Sweden and Finland, A.D. 1776—1795.			Montpellier, A.D. 1772—1792.			
	Males.	Females.	BothSexes.	Males.	Females.		
10	45·03	47·28	46·16	44·12	46·77	40·80	39·78
15	41·51	43·74	42·63	40·06	43·02	37·40	36·51
20	37·86	40·04	38·96	36·52	39·45	34·26	33·43
25	34·48	36·44	35·47	33·49	36·32	31·34	30·85
30	31·22	33·00	32·12	30·43	33·34	28·52	28·27
35	27·95	29·68	28·82	27·30	30·41	25·72	25·68
40	24·61	26·27	25·45	24·06	27·45	22·89	23·08
45	21·45	23·03	22·26	21·00	24·44	20·05	20·52
50	18·36	19·66	19·03	18·23	21·35	17·23	17·99
55	15·39	16·37	15·90	15·53	18·42	14·51	15·58
60	12·47	13·18	12·85	13·14	15·73	11·95	13·21
65	9·92	10·41	10·19	11·01	13·22	9·63	10·88
70	7·87	8·12	8·01	9·02	10·79	7·58	8·60
75	6·13	6·38	6·27	7·07	8·44	5·87	6·54
80	4·75	4·94	4·85	5·17	6·17	4·60	4·75

with a coasting county—in order to determine the relative value of life in the respective populations, it cannot at the present time be done. The Report of the Census Commissioners gives the population for those counties; but on reference to the Reports of the Registrar-General it is found that the deaths are given for quite a different arrangement of districts. Again, if it be required to compare one district of the Registrar-General with another, the same kind of difficulty arises; for, on turning to the Census Report, those districts are in no way recognised. Precisely the same want of unity of plan is to be

regretted in respect to the town districts of England, the districts of the Census Commissioners constantly differing from those adopted by the Registrar-General.

Were these difficulties overcome, it would then be easy to determine the difference of mortality in various districts, in precisely the same manner that the difference of mortality in male and female life has been found in the preceding Table. Another inquiry, at least however, would still remain, before it could be decided to what extent the difference of mortality was owing to the simple influence or peculiarity of locality itself.

At present it is right to assume, that either employment or occupation—condition in life, or rank in society—poverty or riches—has as direct an influence on the duration of life, as peculiarity of locality or habitation; for the effect of neither the one nor the other of the presumed influencing causes has yet been correctly defined. The truth of this assumption may appear more evident thus:—suppose that the town of Liverpool were compared with some purely agricultural district, and that a much higher rate of mortality was found to prevail in the former; it would be no more right to assign this result wholly, or indeed any given portion of it, to the badly-conditioned streets and ill-planned houses of Liverpool, than to any other of the supposed causes.

In order to determine the simple influence of locality, like classes in the respective districts must be compared. In a comparison of districts A and B, if it so happened that in A two elements *c* and *d* were found to influence the value of life, while in B one only of those elements existed, the grounds of comparison would evidently be fallacious. Now this is precisely a parallel case to the state of things which exists in comparisons that have frequently been made between the manufacturing towns and the rural districts of England, and between one manufacturing town and another. Causes influencing the duration of life, independent of locality itself, frequently exist in the one, and not in the other; by overlooking which, observers are often led to assign excessive mortality to imaginary causes. If simple elements were compared, errors of this kind would be avoided. Keeping this in view, and referring to the preceding case, let *c* be supposed to represent comfort, and *d* distress. If, comparing comfort in district A with comfort in district B, a greater mortality were found to prevail in the former than in the latter, it would then be right to assume that the remaining elements—ill-ventilated houses, badly drained streets, and the like—in district A, were not so favourable to life as in district B; but it would have been wrong to draw such a conclusion, had comfort and distress in the one district been compared with comfort only in the other.

It is evident that, in a comparison of the general mortality of any one place with that of another, such errors could not be avoided. It may happen that the prevalence of a particular kind of employment or occupation in the one, which is not common to the other district—but which employment is of an unhealthy nature, or perhaps subject to great fluctuations in prosperity, or probably both combined—may produce an excessive mortality, the cause of which may be attributed to badly-planned dwellings, instead of poverty and its train of direful consequences.

If it were possible to compare any one class in a given district with the same class under exactly similar circumstances in another district, the only distinction being the difference of district or locality, then it is plain that the influence of locality, if any, would manifest itself.

Again, if different classes of persons in the same locality were compared—for example, those following different employments—the only distinction being difference of employment, then the effect of that element, if any, on the duration of life would appear.

In the present paper it is proposed to enter into this question, and to show if possible the influence of locality in the manner just described. The effect of employment on health will be treated of, on the present occasion, so far only as may be necessary to solve the question of locality.

2. Duration of Life in various Classes.

The data to which this part of the inquiry belongs have been derived from two sources. One portion—that relating to the Friendly Societies in England—has been obtained through the kindness of Mr. J. Tidd Pratt; and consists of the Quinquennial Returns for 1836–1840, made under the Friendly Societies Act, 10 Geo. IV. c. 56. sec. 34, as amended by 4 and 5 Wm. IV. c. 40, sec. 6. And an inspection of the form of schedule given under that Act will show the nature and extent of the information which can be derived from this source.

It was considered that returns from the Friendly Societies in Scotland would form a valuable contribution to Vital Statistics, and at the same time be interesting to compare with the results obtained from English Societies; especially as Mr. Ansell's valuable work had given rise to many curious conjectures on the comparative amount of sickness in the two countries; the inquiry made by the Highland Society having exhibited a less degree of sickness among the Scotch societies, than the results of Mr. Ansell's investigation showed to be prevalent in societies in England. Accordingly, in 1840, a number of blank schedules were sent to nearly every parish minister in Scotland, with a note requesting him to use his influence with the neighbouring Friendly Societies, to induce them to furnish the information required; but the attempt to procure data in this manner proved an almost complete failure. In 1843 another attempt was made, but on this occasion prizes were offered to those making the best and most complete returns; which had the desired effect of procuring a series of schedules filled up evidently with much care; and although very elaborate, the nicest attention seemed to be given to the minutest detail. These constitute the second source from which the data just referred to are derived.

The data were subsequently abstracted; the results of each Society being separate from those of every other. The results of each particular trade or employment were also kept distinct from those of every other occupation.

By this arrangement a means was afforded to measure the precise amount of sickness and mortality experienced by any particular

Society, the ratio due to each year of life, and also how far its affairs were influenced by the particular trades and occupations of its members.

All the Societies having been abstracted in this way, the results were afterwards combined in the following manner:—The Societies belonging to the Rural Districts were placed in one group. The Societies belonging to Town Districts were placed in another group. And a third group was formed from those Societies established in the great towns or cities*.

This plan was adopted in preference to a binary arrangement, in order to prevent a purely rural district from being mixed up with some of the smaller towns, and the great city districts with the larger towns.

The results of the first group, or Rural Districts, were then combined as follows. The totals of a given trade were placed on one of the abstract sheets; and the totals of the same trade in a second and a third Society, and so forth, were placed next in order on the same sheet, until all the Societies in the Rural Districts of the first county in alphabetical order were exhausted. The sums of those totals were then found, which showed the amount of sickness and mortality among a certain number of persons at each age and of a given trade in that county. The same trade was carried through the rural districts of every other county in the same manner; and the totals for each county being added together, showed the general result for that trade in the whole of the rural districts combined. The same trade was carried through the second group, or Town Districts, and also the third group, or City Districts, in precisely the same manner, so that an opportunity was thus afforded, of viewing the comparative degree of health in the same occupation or employment, in the three districts referred to. Those three districts were next combined, to give the general results for that trade without regard to locality. A second trade was taken up in the like manner, and carried through precisely the same steps, and so also were other trades until all were exhausted. The totals of the various trades in the Rural Districts were then combined, giving the general results for that district without regard to occupation, and so on with each of the other districts; and the combination of these last three gave of course the general results, without regard to either trade or locality.

All the possible combinations of those elements of the data being thus made, the next step was to exhibit the results in a convenient form, from which to make useful deductions. Tables were therefore formed, shewing the total number of persons, at every year of life over which the observations extend, the number of deaths among them yearly, and the amount of sickness yearly, expressed in weeks and decimals of a week. In the same Tables are also given the same facts for quinquennial periods of life, also the rate of mortality per cent., and the average amount of sickness per annum to each person.

As these observations extend over upwards of 400 different trades or occupations, the examination of each under the varied combinations

* A list of the places composing the respective groups of Rural Districts, Town Districts, and City Districts, is given in Appendix, Note II., to the "Contributions."

described would involve the consideration of so immense a number of Tables, as would evidently perplex the present inquiry. Such only will therefore be brought forward as seem to bear distinctly on the more immediate question, What is the influence of locality on health and on the duration of life? *

In the "Rural Districts," the highest specific intensity is attained at the youngest ages, and it decreases up to age 20, from which age up till 31 it increases, and then decreases gradually till near the extreme of life. A comparison of the specific intensity with the general result for the male population in England and Wales shews a higher intensity of life through its whole duration, maintaining at the same time a very remarkable parallelism.

At Age 20		{ the Specific Intensity for the male population of England and Wales is as high as at		Age 39 in the Rural Districts.	
"	30	"	"	"	47
"	40	"	"	"	50
"	50	"	"	"	55
"	60	"	"	"	63
"	70	"	"	"	71

An approximating value taking place up to about this period, after which they again diverge to near the extreme of life.

The population existing at age 10 in England and Wales is halved between ages 62-3; while in the Rural Districts the same result does not happen till ages 68-9;—shewing under this aspect a superior vitality of six years.

If from the Rural we turn to the Town Districts, the specific intensity will be found to decrease in a regular series, from the beginning to the end of life. It also appears that the specific intensity is higher than for the male population of England and Wales up to age 52, but from that to age 76 it is less. From the latter age to the extreme of life, the values for the two classes cross each other. The following are the ages at which the corresponding specific intensities in both Tables are nearly equal:—

Age 20 in England and Wales corresponds with Age 31 in Town Districts.	
" 30	" 41
" 40	" 45
" 50	" 50
" 60	" 58
" 70	" 63
" 80	" 82

In Town Districts half the population disappears between ages 64-5; the same result takes place in England and Wales at ages 62-3.

Turning next to the results for the City Districts, we find that the specific intensity decreases in a uniform series, from the earliest age to the end of life. It also appears that from the age of 10 to 33 there is a higher specific intensity than in England and Wales; and that from 33 to the extreme of life, the specific intensity in the City Districts is less than in the male life for England and Wales. The following are the ages corresponding to equal specific intensities:—

* The Tables here referred to are Tables E and F, pp. 13 and 25 of the "Contributions."

Age 20 in England and Wales corresponds nearly with Age 25 in City Districts.

" 30	"	"	33	"
" 40	"	"	37	"
" 50	"	"	46	"
" 50	"	"	59	"
" 60	"	"	69	"
" 80	"	"	79	"

Half the population in City District has died off between the ages of 61 and 62, while among males in England and Wales that happened at ages 62 and 63; being in this instance one year in favour of the whole country.

On placing the three districts side by side, we have,

A higher Specific Intensity in the	Rural Districts than in England and Wales up
	to the extreme of life.
" " "	Town Districts up to the Age of 52
" " "	City " " 33

From this it would appear, that the lower the age of equal specific intensity, the worse the class of lives to which it refers. Another comparison of these three classes of results with those obtained for England and Wales will shew the following series of differences for the corresponding ages of equal specific intensity:—

Age.	Rural Districts.		Town Districts.		City Districts.
20	19	.....	11	..... 5
30	17	.....	11	..... 3
40	10	.....	5	..... 3
50	5	.....	0	..... — 4
60	3	.....	— 2	..... — 1
70	1	.....	— 2	..... — 1
Sums of the series of differences		55	.....	23	..... 5

This arrangement of the differences of corresponding periods of equal specific intensity also points out a gradual approximation to lower numbers, moving from the Rural towards the City Districts. And a third illustration of the same fact will be afforded by a comparison of the periods at which the equation of life is found for age 10. It is found in—

England and Wales.	Rural Districts.	Town Districts.	City Districts.
At Ages 62—3	63—9	64—5	61—2
diff.	6 years.	2 years.	— 1 year.

As before stated, the illustrations drawn from the specific intensity must be understood to have reference to the identical periods only of life at which the comparisons are made, and not to the absolute value of life in any of the classes. It will, however, at all times be found important to keep in view the specific intensity, as it affords the readiest means to discover those periods at which any peculiar change or difference in the condition of life is taking place. Various diseases have a maximum or minimum effect in destroying life at certain periods; and if a change to a higher specific intensity were found to take place at any given period, the diseases peculiar to that period should be falling from their maximum towards the minimum.

In the three districts now under consideration, it was found that in all except one, the specific intensity uniformly decreased from the beginning to the end of life; but in the Rural Districts the specific intensity was found to increase from ages 20-31. Some change, either in the Rural Districts or uniformly in the two others, must therefore have taken place in the causes affecting the duration of life at that period; and if the nature of this paper led to an examination of the diseases generally prevalent at the same period, the probability is that consumption and diseases of the chest would be found less malignant at that term of life, in relation to the preceding and subsequent periods of life, in the Rural than in either the Town or City Districts.

The next arrangement of the data to which reference will be made, is the expectation of life. This mode of expressing the duration of life is certainly that which is of the most interest to society; for it points out the average number of years which one member of the community with another participates in the pleasures and cares of life. The expectation of life is often confounded with the chance of living an equivalent number of years; but the distinction will be subsequently explained*.

A comparison of the expectation in Rural Districts, with the expectation for males in England and Wales, shows a much higher value of life in the Rural Districts throughout the whole range of the Table. At age 10 the difference is 5·5 years in favour of the Rural Districts, at 30 it is 4·3 years, and at 60 it is 2·1 years. The following Table will show for decennial periods the relative value of life in England and Wales, and in the Rural Districts:—

TABLE IV.

Age.	EXPECTATION.		Difference in favour of the Rural Districts.	
	Rural Districts.	England and Wales.	In Years.	Per Cent.
20	45·3550	40·6910	4·6640	11·462
30	38·4073	34·0990	4·3083	11·191
40	30·9724	27·4760	3·4964	12·725
50	23·4700	20·8463	2·6237	12·585
60	16·6524	14·5854	2·0670	14·171
70	10·9124	9·2176	1·6948	18·386

A comparison of the results for the Town Districts will show a superior expectation of life up to age 35, after which period the expectation is in favour of male life in the general Table for England and Wales. The following abstract shows the results for decennial periods:—

* In Table G, p. 32 of the "Contributions," will be found the Expectation of Life for each of the three districts, and also the General Results for those three combined.

TABLE V.

Age.	EXPECTATION.		Difference in Favour of			
			Town Districts.		England and Wales.	
	Town Districts.	England & Wales.	In Years.	Per Cent.	In Years.	Per Cent.
20	42·2742	40·6910	1·5832	3·888		
30	34·5753	34·0990	0·4763	1·397		
40	27·1530	27·4760	....	....	0·3230	1·176
50	19·9733	20·8463	....	....	0·8730	4·188
60	13·7608	14·5854	....	....	0·8246	5·653
70	8·7030	9·2176	....	....	0·5146	5·582

The expectation of life in the City Districts will be found to be less than in England and Wales from 12 years upwards. At 20 the difference is ·68 years, at 40 it is 1·39 years, and at 60 it is ·82 years in favour of the general value of male life in England and Wales. The following gives a comparative view of the expectations for both classes:—

TABLE VI.

Age.	EXPECTATION.		Difference in favour of England & Wales.	
	City Districts.	England & Wales.	In Years.	Per Cent.
20	40·0148	40·6910	0·6762	1·664
30	32·8603	34·0990	1·2387	3·632
40	26·0873	27·4760	1·3887	5·054
50	19·9271	20·8463	0·9192	4·409
60	13·7685	14·5854	0·8169	5·608
70	8·7636	9·2176	0·4540	4·092

The comparative value of life in the three districts at decennial periods will be seen by an inspection of the following Table; the 6th and 8th columns of which will point out the gradual decrease in the value of life in moving from the Rural to the Town, and from the Town to the City Districts:—

TABLE VII.

Age.	EXPECTATION OF LIFE.			Excess in Favour of Rural, over			
				Town Districts.		City Districts.	
	Rural.	Town.	City.	In Years.	Per Cent.	In Years.	Per Cent.
20	45·3550	42·2742	40·0148	3·0808	6·790	5·3402	11·774
30	38·4073	34·5753	32·8603	3·8320	9·977	5·5470	14·442
40	30·9724	27·1530	26·0873	3·8194	12·331	4·8851	15·772
50	23·4700	19·9733	19·9271	3·4967	14·900	3·5429	15·100
60	16·6524	13·7608	13·7685	2·8916	17·364	2·8837	17·318
70	10·7124	8·7030	8·7636	2·2094	20·246	2·1488	19·691
Total Excess.....				19·3299		24·3479	

The next arrangement of this kind which will be brought under notice is the expectation of life as derived from the combination of all the data composing the three districts now referred to; and may be understood to represent the general value of male life as it exists among the members of the community composing Friendly Societies. Throughout the whole range of this table the expectation of life is found to be higher than among the male population of the country generally. A glance at the following table will show for the three districts the difference at the given periods of life:—

TABLE VIII.

Age.	EXPECTATION IN		Difference in Favour of the Three Districts.	
	Three Districts.	England & Wales.	In Years.	Per Cent.
20	43·7736	40·6910	3·0826	7·575
30	36·6051	34·0990	2·5061	7·349
40	29·3306	27·4760	1·8546	6·750
50	22·1920	20·8463	1·3457	6·455
60	15·6942	14·5854	1·1088	7·602
70	10·2057	9·2176	0·9881	10·720

A very important distinction is here found to prevail between the value of life in the two tables. The circumstances in which the humble and working population of the country is placed, have generally been thought adverse to a prolonged duration of life: but the healthiest Life Tables hitherto formed have not shown any thing so favourable as the present results, even among what are generally considered the select classes of society:—

It may be well to be understood here, that the persons composing Friendly Societies are almost exclusively the hard-working members of the community, chiefly occupied in the drudgeries and toils of the mechanic arts, and consequently exposed to the inclemencies of seasons, excesses of temperature, impure atmospheres, constrained postures, and other conditions usually thought objectionable. Their incomes are very limited, affording but the scantiest and simplest means of support. Their habitations are of an inferior order, being of the cheapest kind, and consequently in the worst streets. The members of Friendly Societies are therefore generally placed in those circumstances which persons habituated to the luxuries of the upper ranks of society would regard as unfavourable to health and a superior duration of life. In making these remarks, however, it is necessary, as will hereafter be seen, to make a distinction between them and the great bulk of the poorer classes of the country. For an individual to remain a member of a Friendly Society, it is required that he should make his weekly or monthly contribution to its funds; and although a few pence is all that is needed, it presumes on a certain amount of frugality and industrial habit, sufficient to separate him from the reckless and improvident person, who is more openly exposed to the vicissitudes—poverty, distress, destitution, and disease—incidental to fluctuations in the demand for labour.

The superior value of life among the members of Friendly Societies is a very remarkable and important feature in this inquiry, and is a result that generally would not have been anticipated; and the question which naturally follows is, From what source or class does the excess of mortality, which makes up the general average of the community arise?

Those persons having transactions with the Assurance Companies belong, with a very few exceptions, either to the middle or the higher ranks of society; and if the value of life, as deduced from observations in those companies, be admitted as a correct measure for such classes, it will be found that their duration of life is not only less than among the members of Friendly Societies, but also less than in the country generally*.

It may be said, in reply to some of the preceding observations, that the superior value of life in the ranks of Friendly Societies, above the general community, is owing to the effects of selection; but a little reflection will show that the difference must be produced by other causes. Every reasonable means is adopted to test the lives admitted into Assurance Companies, and yet they appear to be of less value than the general average of the country; and Friendly Societies are known *not* to exercise the same degree of scrutiny. In both the interest of the applicant for admission is opposed to that of the Society; and, looking at the results, it is not unlikely that the vigilance of the one may be neutralized by the interests of the other. Another result brought out by the observations on the lives in Assurance Offices will show how inadequate the means of selection usually resorted to are to raise the standard of life above the average of the country. All other inquiries hitherto made on male and female life have tended to attach a greater value to the latter than to the former; but the results in the Assurance Companies have been reversed, showing that some other causes, beyond the method of selection, must have interfered to modify the state of health; for if the means of scrutiny had been adequate to determine the actual character and condition of health, the prevailing feature of each sex would have manifested itself, and the anomalous result of male life being of higher absolute value than female life would not have appeared.

Assurance Companies, it has been stated, are likely to have proposals most freely from among unhealthy persons for sums payable at death; but that proposals for annuities, or sums payable during life, will be made on the lives of the most healthy only; and that the private opinion of the individual being always brought to bear against the Company, the effects of selection under this aspect ought to prevent the results of such observations from being regarded as a true exponent of the value of life in the class of society generally to which those persons belong. There exists no published document, so far as Assurance Offices are concerned, to show whether this opinion is well founded: but there is evidence of the same kind,—of equal, or per-

* At p. 36 of the "Contributions," in Table H, No. 5, col. 2nd, the Expectation of Life is given as deduced from the aggregate observations of Assurance Companies, and includes both sexes; but col. 1st (Males & 1) of the same Table relates to Male Lives only, and is consequently that which should be brought into comparison with the results of this inquiry.

haps from its greater extent, of higher value, than any to be drawn from the Assurance Companies. The tables calculated by Mr. Finlaison, on the lives among the nominees of the Government tontines and annuity schemes, are here alluded to. The facts over which his observations extended possessed almost every advantage that could be desired; and, considering the acknowledged skill and care with which his computations were managed, the Government Table must be entitled to the highest confidence, and the expectation of life thence deduced regarded as the true measure of life in that particular class of society*.

From a comparison of these data, then, it follows that the male lives selected for the Government annuities are not only of less duration than those of the male population of the country generally, and also of less value than lives in Assurance Companies, but that they are actually of less value than those of the members of Friendly Societies in the City Districts. It is evident from these results, that the presumed power of the individual to judge of his own state of health has not shown the remarkable effects anticipated; there is more reason to believe that the natural inclination with which every person is led to look upon his life as good, will very much influence any power of discrimination on his own chances of longevity. It is, however, to be kept in view, that persons of decidedly bad health will rarely purchase annuities: and the exclusion of these has, no doubt, some effect in slightly raising the standard of the table. A similar observation is also to be made with respect to the applicants to Assurance Companies. There is a strong temptation for those in really bad, or at least in indifferent health, to offer themselves for assurance; and if all were admitted, no doubt a lower value would be expressed by the Tables. The known caution, however, usually exercised in these matters, and the medical talent brought to the aid of the offices, is a protection against the very worst lives of that class; about 23 per cent. of the applicants being the average number rejected.

Friendly Societies, although not equally solicitous, are still not without tests for the admission of members, and they possess one advantage over Assurance Companies; the members, and those likely to be candidates, are generally intimately known in their daily habits and ordinary health to each other; and where evidently bad health exists, admission is refused. A consideration of all that has been advanced will show that the greater vitality among members of Friendly Societies cannot be accounted for by the superior mode of selecting lives; for, if that argument were carried out to its full extent, it would go to prove that the other classes in question had, in that respect, the advantage. The blessing thus bestowed on the frugal and industrious workmen of the country composing Friendly Societies in having granted them, as appears by the present inquiry, a prolonged duration of life, must therefore be regarded as a really true and distinctive

* In the "Contributions," p. 37, a Table will be found (Table H, No. 6,) which has been recalculated from the facts given by Mr. Finlaison, at p. 67 of his Report on Life Annuities, in March, 1829—being the combined results of six different classes of observations on male lives. That usually quoted as the Expectation Table of the Government Annuitants, is the one calculated by Mr. Finlaison in 1825, and differs in some important particulars from his subsequent and revised data in 1829.

feature of that class of persons, and is, no doubt, the result of their simple and uniform habits of life, and the more regular and natural physical exercises to which they are habituated.

If the nature of the present paper led to a further investigation of this point, it could be clearly shown, by tracing the various classes of society in which there exists sufficient means of subsistence, beginning with the most humble, and passing on to the middle and upper classes, that a gradual deterioration in the duration of life takes place; and that just as life, with all its wealth, pomp, and magnificence, would seem to become more valuable and tempting, so are its opportunities and chances of enjoyment lessened. As far as the results of figures admit of judging, this condition would seem to flow directly from the luxurious and pampered style of living among the wealthier classes, whose artificial habits interfere with the nature and degree of those physical exercises which, in a simpler class of society, are accompanied with a long life.

Thus far, then, it is plain that the amount of life enjoyed by the middle and upper classes tends rather to depreciate than elevate the standard deduced from the general results of the country. And carrying this out still further, and viewing the value of life in the highest ranks of society,—namely, the peerage and baronetage,—as given in the recent and very interesting paper submitted by Dr. Guy, it will be seen that the expectation of life is not only less than in the general community, but also very much below the measure of life *among the members of Friendly Societies in the City Districts**. It may then be conclusively admitted, that the standard of life in the general community is not elevated in any way by the influence of the middle or upper classes. With regard to the very highest ranks, the opposite conclusion must be come to; but as the numbers of the nobility are relatively small, the inferior value of life there shown is not sufficient to account for the reduction of the scale for the general community so much below the average standard of all classes in Friendly Societies.

Hence it follows that the excess of mortality in the general community must fall on the residue of the people; and although at present there exists no direct means of measuring the precise value of life in that portion of the population, it is evident that an inferential one of equal importance is immediately available.

Admitting that the preceding tables form a correct representation of the value of life in the respective classes, it will be easy to arrive at the value of life in the remaining class; for—

Let Table A represent the rate of mortality in the general community, viz., over all England and Wales;

And let b = rate of mortality in one class, viz., Friendly Societies, and forming a part of A or included in it;—Also,

Let c = rate of mortality in a second class, viz., the middle and upper classes, and also included in A; then it is evident that

$A - (b + c)$ = the rate of mortality in the remaining class composing the community. This latter class includes the improvident and reckless, the poor and the destitute, who are exposed to the inclemen-

* The Expectation of Life in the Peerage will be found at p. 36 of the "Contributions," in Table H No. 3.

cies of the seasons, the fluctuations of trade, and fall victims to epidemical and other diseases. Subsequent illustrations will more clearly establish this fact, when the question of large towns or cities is brought under consideration.

In making the preceding comparisons of the mortality of the Rural, Town, and City Districts respectively, with the average results for the whole population of England and Wales, no further corrections of the figures than those described were needed; but before bringing the table representing the combined results of the three districts into comparison with the mortality of the whole population of the country, it would have been important to be enabled to apply a further correction to the elementary data.

If R, T, and C, represent the population over which the observations extend, for the Rural, Town, and City Districts respectively, and

r , t , and c , represent the number of deaths in the same population for the respective districts at each period of life;

then the mortality per cent., and consequently all subsequent results, for the average of the three districts, or rather the three districts combined, is derived from—

$$\frac{(r + t + c) \cdot 100}{R + T + C}$$

This is the usual mode by which general averages for various classes of lives have been hitherto determined; but it is evident that unless R, T, and C, bear the same ratio to each other which the whole population of the districts they represent do to each other, the average results cannot be true.

This fact may be rendered more intelligible by the following hypothetical illustration. Suppose at any given age the population over which the actual observations extend was 100 for each of the three districts, viz:—

For District	R = 100	Annual Deaths	2
„	T = 100	„	3
„	C = 100	„	4
	<hr/>		<hr/>
	R + T + C = 300	„	9

then the average result thus derived would show a mortality of 3 per cent.; but if the whole population of those districts had been to each other in any other relation than an equality of numbers—say 100, 50, and 25—then the number of deaths would have become 2, 1.5, and 1 respectively: consequently the correct average mortality would have been 2.571 per cent., instead of 3 per cent.

The following mode of obtaining a correct average has also been suggested, but it is obvious that it would involve errors of a more serious nature than the common method employed.

$$\frac{r \cdot 100}{R} + \frac{t \cdot 100}{T} + \frac{c \cdot 100}{C}$$

3

A single illustration will be adequate to point out the fallacies of this.

appearing in the value of life between the respective districts to the peculiar influence of town or city life. Other causes than locality will, however, be shown to influence the duration of life.

If the data composing the facts presented in the preceding tables be analysed, so as to distinguish one employment from another, it will be found that some occupations are much more healthy than others. The first evidence of this to be brought forward will be confined to the rural districts. From a table* which represents the mortality of labourers in the rural districts, being chiefly agricultural labourers, it appears that a much higher specific intensity prevails up to the age of 80 than among men following all employments in the rural districts. The specific intensity of labourers, however, decreases in a gradual and regular series from the youngest ages in the table, following the rule of the general results of the other districts, and not presenting the apparent anomaly of the general results for the rural districts by showing an increasing specific intensity from twenty to thirty-one years of age. It will be found that the specific intensity for the total inhabitants of rural districts—

At Age 20 is as high as at Age 41 for Labourers.

„ 30	„	41	„
„ 40	„	44	„
„ 50	„	54	„
„ 60	„	64	„
„ 70	„	72	„

The population in Rural Districts (all classes) was shown to be bisected at ages 68-9, while among the labourers that will be seen to take place at ages 71-2. The sum of the series of differences of the points of equal specific intensity between the Rural, Town, and City Districts respectively, and the male inhabitants of England and Wales were shown to be 55, 23, and 5; but the sum of the same order of differences for labourers is 78; so that the difference between labourers and the general results for the Rural Districts is more than equivalent to the mean difference between Towns and Cities and the Rural Districts. It will also be seen that the sum of the series of differences of the points of equal specific intensity in the Rural Districts generally, and the labourers, is 46, being above the mean of 55 and 23.

The difference for the equation of life to

Age 10, between Rural and Town Districts, is 4 years.

„	„	Town and City	„	3	„
and	„	Labourers and Rural	„	3	„

So that, in this general way of viewing the question, employment produces as wide a distinction as locality†.

It further appears, that the expectation of life among labourers in the Rural Districts exceeds the expectation of the Rural Districts generally throughout the whole term of life. At decennial ages the following is the relative value of life.

* This Table will be found at p. 43 of the "Contributions."

† See Table J, "Contributions," p. 50.

TABLE IX.

Age.	Rural Districts.		Difference in Favour of Labourers.	
	General Results. G.	Labourers. J.	In Years.	Per Cent.
20	45.3550	47.9063	2.5513	5.6251
30	38.4073	40.5972	2.1899	5.7017
40	30.9724	32.7693	1.7969	5.8016
50	23.4700	25.0745	1.6045	6.8500
60	16.6524	17.8205	1.1681	7.8146
70	10.9124	11.3498	0.4374	4.0072

The preceding arrangements, however, do not show the full influence of employment on health, or rather that of an individual employment on health; for, in making comparisons of classes with any standard, that standard ought not to include the class held in comparison, but be the residue left by abstracting that class from the general results; otherwise the effect of that class, in changing the integral expression, will not be seen to its full extent, and the concealment of the real difference will be the greater in proportion to the high ratio which the numbers of the class compared bear to the total numbers. For example:—

Let $a = 20$ per cent. and represent the total results or general average; and
 „ $b = 25$ } per cent. and represent classes composing the general
 „ $c = 15$ } average A ;

Then, if either class b or class c were compared with the total result or general average, the apparent difference would be only 5 per cent.; while the actual difference between it and the residue class is 10 per cent. Hence, if any class of results be compared with the general results in which that is also included, the apparent difference will always be less than the actual difference, whether the effect of that class be to increase or decrease the ratio of the general results.

The class labourers has, therefore, been eliminated from the general results for the Rural Districts, and the residue formed into another Life Table*, and it will be found that the specific intensity for the Rural Districts generally is as high

At Age 20 as at Age 16 for the Residue.

„ 30	„ 16	„
„ 40	„ 35	„
„ 50	„ 48	„
„ 60	„ 58	„
„ 70	„ 69	„

The corresponding points of equal specific intensity for the residue at

Age 20 is as high as Age 52 for Labourers.

„ 30	„ 44	„
„ 40	„ 48	„
„ 50	„ 55	„
„ 60	„ 65	„
„ 70	„ 72	„

* See Table I., No. 1, p. 43, and Table I., No. 6, p. 48, in "Contributions."

Half the population dies off at age 65-66 in the residue, at age 68-9 in the general average, and at age 71-2 in the labourers.

The great distinction between the value of life among the labouring population in the Rural Districts, and the rest of the Rural Districts, is therefore obvious; and conclusively shows, that even in the same locality, in the rural districts of the country, where all the supposed contaminating influences of ill-ventilated houses, narrow streets, bad sewerage, poisoned air, epidemic town fevers, and factory restraints, are absent, there is nevertheless a very great superiority in the value of life in one class over another. In the Rural Districts recited in the early part of this paper, very little difference can be supposed to exist between the means of support and the various habits of life of the members of Friendly Societies. In fact, they may be presumed to assimilate as near to each other's condition as any means of classification can suggest, the only difference between the individual members being difference of employment or occupation; and therefore, in classifying the various trades, pure elements may be said to be brought into comparison, the only distinction being difference of occupation.

It has already been stated that anything like a complete inquiry into the influence of employment on health is not contemplated in this paper. A few illustrations only will be brought forward to aid the other branch of the inquiry, and by which it will be seen that, independently of locality, difference of employment has a marked effect on the duration of life.

If this position can be fairly established, it will follow as a direct consequence, that wherever an excess of unhealthy trades are congregated, there must also be an increased rate of mortality independent of the local influence; for if the same trades were placed in any other district, there would still be an increased rate of mortality simply in virtue of the trade or occupation.

At ages 30-35, the general mortality of the Town Districts exceeds that of the Rural by 14·981 per cent. of the whole mortality at that period of life; but if the class designated labourers were abstracted from the Rural Districts, the mortality of the residue would be increased 6·181 per cent. of the original ratio. But suppose a still further change to take place, and that the class named labourers is not only abstracted from the Rural Districts, but added to the Town Districts; this arrangement would affect the respective mortalities to such an extent, that instead of the mortality of the Town Districts exceeding that of the Rural Districts by 14·981 per cent., it would fall short of it by 1·831 per cent. of the whole mortality at that period of life. In like manner also would other periods of life be affected. It is evident, therefore, that the residue of the population in the Rural Districts has a factitious value assigned to it, from being mixed up with the class called labourers; and that in any attempt to discover the relative values of life in different localities, unless employment were made an element in the comparison, an undue value would be attached to a great portion of life in the Rural Districts. The nature of the Rural Districts is such, that a great proportion of the upgrown population must consist of agricultural and other labourers. In the facts here collected, they amount to 33 per cent.; and their lives being of higher value than the average lives in the district, it is no more fair

to judge of the value of life and the influence of locality on the residue of the population from calculations involving the consideration of all the lives generally, than it would be just to compare the value of life in the residue in the preceding illustration with town life, and draw the conclusion that life in the rural districts was of less value than in the town districts; for in both cases a factitious value is assigned, by being mixed up with a favourable class.

From the preceding remarks it is evident that in particular occupations, even in the Rural Districts, life is of less value than in others. Those occupations cannot be said to be less healthy from the objectionable features peculiar to large towns and cities, for they must be supposed under very favourable circumstances for prolonged life. From a table presenting the expectation of life in sixteen trades* in the Rural Districts, selected at random, without any previous knowledge as to whether they were healthy or otherwise†; it appears that the value of life is less than the average for the whole Rural Districts; and labourers were before shown to be more healthy than the average results. It is therefore clear, that if a given district were chiefly made up of the class whose lives are above the average value, or of those below it, that the general results for that district would be of high or low value accordingly.

A very small portion of the population in either the Town or City Districts can follow agricultural pursuits; and therefore the standard of life in those districts will be lowered in consequence of that circumstance alone; but on further examination it will be found that the comparative value of life in those districts is not only lowered in consequence of the absence of many of the most healthy occupations common to the Rural Districts, but that it is still further decreased by the presence of some of the most unhealthy employments, not to be found, or at least to a very limited extent, in the Rural Districts. In other words, the effect of the occupations is such, that if the same people were placed in the Rural Districts, no matter over how much surface they were spread, in order to avoid the influence supposed to connect itself with the congregation of large numbers into towns, still the mortality would be much higher among the people thus conditioned, than among the average of the rural population in ordinary circumstances.

If the view brought forward be correct, that the mortality of towns and cities is increased from the existence of a high proportion of trades which are in themselves unhealthy, independent of the influence of the locality, it should follow that the difference found by a comparison of the rate of mortality of a given number of trades in one district, with that of the same trades in another district, should be less than the difference between the rates of mortality for the general results of the same districts. If the differences of the decennial periods from 10 to 70 in the general results for rural and town districts be taken, the sum of the differences will be found to amount to 19·3299 years; but

* Table H, No. 4, p. 37, "Contributions."

† Namely, plumbers, painters and glaziers, weavers, butchers, millwrights, stonemasons, cabinet-makers, printers, bakers, bricklayers, wheelwrights, tailors, cordwainers and shoemakers, sawyers, clerks, carpenters and joiners, and blacksmiths.

the sum of the differences at the corresponding periods for the 16 trades formerly referred to is only 16·3868 years; being less than the other by about 15 per cent. For a like reason it should follow, that if the differences at the same periods between the 16 trades and the general results of each district be taken, they should amount to less in the town than in the rural districts; and accordingly in the rural districts the sum of the differences is found to be 4·7029 years, while in the town districts it is only 1·7598 years.

In order to afford still further evidence of the effect produced on the average value of life by the prevalence of particular trades, a few other cases will be submitted; and to render the illustrations more simple, they will be given for the average of the three districts, or rather the three districts conjoined; and consequently they must be brought into comparison with the general results for the three districts.

The equation of life in miners is at ages 61-2; in bakers, at ages 59-60; plumbers, painters, and glaziers, at 56-7; and clerks at so early a period of life as 51-2*. For the three districts combined, the same result appeared at ages 66-7, showing a difference of 5, 7, 10, and 15 years respectively; and the following table will show the marked difference in the expectation of life in these employments at five decennial periods.

TABLE X†.

Ages.	Rural, Town, & City Districts. G.	Clerks. J, No. 2.	Plumbers, Painters, and Glaziers. J, No. 3.	Bakers. J, No. 4.	Miners. J, No. 5.
20	43·7736	31·8347	36·9040	40·0268	40·6700
30	36·6051	27·5761	30·5082	32·3572	33·1573
40	29·3306	21·8573	24·3046	24·4756	24·9204
50	22·1920	16·0465	17·0955	19·0910	17·5346
60	15·6942	12·4264	12·1675	14·0632	11·8590

The very remarkable difference between the above employments and the general results, cannot fail to occasion some surprise; and at the same time conclusively prove, that any district containing a majority of the above, or other equally unhealthy employments, must show a very reduced average value of life for the district, independent of the influence of the local situation itself on health.

It will no doubt cause some uneasiness in the minds of inquirers to find, that so highly important and industrious a class of men as clerks should stand lowest in the scale of the above employments; and that from 20 to 60 their expectation of life should be only 75 per cent. of the general average. The expectation of life among plumbers, painters, and glaziers in the same period is equal to 81 per cent., miners 85 per cent., and bakers 88 per cent. of the general average.

Plumbers, painters, and glaziers will be found next in the scale; and although much below the general average, they are still of considerably higher value than the class designated clerks.

* See Table I, p. 43, "Contributions."

† An abridgement of Table J, p. 50, "Contributions."

Bakers, as well as the preceding class, have long been supposed to be unhealthy; and although no attempt had hitherto been made to ascertain the precise value of their lives, it is thought that the present results will show a much greater difference than would be generally calculated upon. The class miners will be found to rank above the three others at the early periods of life, but below them at the latter periods of life.

The remark formerly made should be here kept clearly in view, that the difference found by a comparison of any class with the general results will always be less than the actual difference; and therefore the effect which the preceding and other unhealthy employments have in reducing the average rate of mortality, is still greater than what appears by the preceding table.

Some large towns or cities are known to represent a less value of life to their inhabitants generally than other towns; and the explanation usually given of this difference has been the favourable or unfavourable nature of the locality, and a change in the sanitary regulations of the place looked forward to as a certain remedy; but a minute examination of all the external circumstances affecting life will show that the great diversity in the mortality of certain classes arises from the influence of other agents. Thus if we compare the expectation of life calculated from the combined data of all trades in Liverpool, with the general results for the Rural Districts, we obtain a much greater difference due to locality in the apparent sense, than has hitherto been shown by any other tables of the value of life in different localities; but at the same time it will be seen that this difference falls much short of the actual difference between different employments. At age 30 the difference between the expectation of life in the Rural Districts and in Liverpool is 8.2636 years; but the difference between clerks and labourers is 13.0211 years; and so also at other periods of life. It ought to be understood, that in making this comparison, the influence of employment is shown to disadvantage; for as has been already pointed out, every large town has its average lowered by the influence of certain trades; and therefore the actual difference in the above comparison between the Rural Districts and Liverpool is less than there given: and again, in the comparison between clerks and labourers, the expectation for clerks has been for the average of the three districts; but if it had been taken for the City Districts only, a much greater difference would have been found, and consequently the influence of employments would have appeared the greater*.

In the town of Liverpool there is a uniform decrease in the specific intensity of life from the commencement to the end of life; thus, the specific intensities at ages 30, 40, and 50, correspond with the specific intensities at ages 45, 54, and 63 in the Rural Districts; ages 38, 49, and 57 in the towns; ages 29, 42, and 59 in the cities; and at ages 39, 51, and 61 in the three districts combined. Half the population dies off between the ages 58-9,—an earlier period than in the City Districts by three years.

Again, the expectation of life for all trades in Liverpool† will be

* Table K, No 2, of the "Contributions," p. 58.

† See Table H, No. 2, p. 36, of the "Contributions."

found to be lower than the expectation for the City Districts generally*. The following shows the difference at decennial periods of life.

TABLE XI.

	Ages.	City Districts.	Liverpool.	Difference.
	20	40·0148	37·9553	2·0595
	30	32·8603	30·1437	2·7166
	40	26·0873	23·1524	2·9349
	50	19·9271	17·0946	2·8325
	60	13·7685	11·9626	1·8059

So far as a general inspection of the above results would suffice, it might be inferred that Liverpool is less healthy than the average of the large cities in England; but it is necessary here again to keep in view the peculiar aggregation of employments which are in themselves unhealthy, independent of the locality; for it so happens, that the class of labourers in large cities is subject to a very high rate of mortality, and that the peculiar business of Liverpool occasions a great preponderance of that class in the dock, and other employments of that kind, a large proportion of which enters into the above results.

It has been already shown for the three districts, that the expectation of life for members of Friendly Societies over the country generally, is higher than that for the whole population of England and Wales. In like manner it will also be found, that the expectation of life among the members of Friendly Societies in Liverpool is also higher than the expectation for the general population of Liverpool.

At page xxvii. of the 5th Report of the Registrar-General will be found a Table of the Expectation of Life for the town of Liverpool; and assuming that it gives a correct representation of the value of life of the whole population, we shall find the comparative value of life between the members of Friendly Societies and the general population in the following Table:—

TABLE XII.

Age.	Expectation of Life in Liverpool.		Difference in Favour of Friendly Societies in Liverpool.	
	Friendly Societies.	Whole Population.	In Years.	Per Cent.
20	37·9553	33·0000	4·9553	15·0160
25	33·9067	30·0000	3·9067	13·0223
30	30·1437	27·0000	3·1437	11·6433
35	26·5260	23·0000	3·5260	15·3303
40	23·1524	21·0000	2·1524	10·2500
45	19·9908	18·0000	1·9908	11·0600
50	17·0946	16·0000	1·0946	5·6922

A careful consideration of all the preceding observations, it is believed, will be sufficient to show that the excessive mortality of the

* See Table G, p. 32, of the "Contributions."

general population of Liverpool must be due to some other cause than simply that of locality. The persons over whom the observations in the first column extend, being members of Friendly Societies, and almost exclusively workmen and mechanics, of necessity inhabit the inferior class of houses, in the worst conditioned streets; and it is therefore impossible that they can escape the contagious effect of the pestilential diseases supposed to be the scourge of unhealthy neighbourhoods: and admitting this, the results given for the Friendly Societies must evidence all the legitimate effects due to locality; and therefore the excessive mortality of the general population is due to some other cause—such as the poverty and distress which, unhappily, are allowed to remain so much neglected in the large manufacturing and commercial towns of the kingdom. If any part of this argument were to be met by the statement, that the higher expectation of life given for the members of Friendly Societies in Liverpool than for the general community, may be accounted for by the omission of some very unhealthy trades; this would be sufficiently answered by the fact, that 175 employments are included, and, as has been already shown, some of them the most unhealthy occupations; so that a fair average may be said to be taken. A similar objection might also seem to apply against the general results for the whole kingdom; but if it is recollected that upwards of 400 trades are included, the force of the objection will disappear.

It is evident from all that has been said, that the peculiar sanitary condition of large towns has not the remarkable effect which many have supposed in shortening the duration of life; still, it has some effect, and the nature and extent of that influence it is important to understand. But a rude estimate only can be made, until the value of life in every important employment, occupation, or trade has been investigated, for the various localities or districts, on some such plan as that given in the present paper; and then grouping or classifying a given number of these common to different localities; the result arrived at would show the precise amount of influence which a particular district, city, or town, has on the duration of life. A partial or limited comparison of a few trades would not be adequate to answer definitely this question, but an accurate combination of a sufficiently large number of trades would be necessary to guard against the effect of fluctuation.

At the beginning of this paper it was stated, that to carry out the question in this extended degree, was a task of too imposing a nature on the present occasion; and that such illustrations only would be brought forward, as would be necessary to solve the more immediate question.

On the general mortality of large towns especially, little confidence should be placed, even although every other precaution as to distinction of age and other conditions be taken; for fallacies from two sources are apt to enter:—First, if, in comparisons of large towns, precisely the same classes of trades do not exist, errors will arise from that circumstance;—and in the second place, although the same classes of trades do exist in both places, unless the proportionate numbers to the whole population be the same, errors in the result must arise. The nature of the error in the first case is plain, from the fact that different

trades are in the same place influenced by different rates of mortality; and if any given trade is wanting, its tendency to alter the general average will be lost. The error in the second case is of a like nature; for if the absence of the whole class affect the general result, the absence of a fraction of that class must also affect it, although not to the same extent. Illustrations confirmatory of this have already been given when discussing the influence of the class of labourers, and also of the sixteen trades combined, on the general averages for the respective districts; and a recurrence to those illustrations will be sufficient to show the truth of the present observations.

The next part of the inquiry on which I propose to enter is the rate of mortality for female life among the members of Friendly Societies in England and Wales, for the Rural, Town, and City Districts combined*. Male and female life in this class seems to stand, in many respects, in the same relation as male and female life generally in England and Wales; the specific intensities at the earlier periods being higher for male than female life, 'crossing each other at the middle periods, and turning in favour of female life at the advanced ages. The male population for the three districts is bisected at 66·7, and the female population at the same period of life. In the general population of the country the same thing takes place a year later among females than among males.

The following abstract will show the relative value of male and female life in the country generally, as well as in Friendly Societies†:—

TABLE XIII.

Age.	Expectation of Life in England and Wales.			Expectation of Life among the Members of Friendly Societies.		
	Males.	Females.	Difference.	Males.	Females.	Difference.
20	40·6910	41·5982	·9072	43·7736	45·2640	1·4904
30	34·0990	35·1671	1·0681	36·6051	38·1841	1·5790
40	27·4760	28·7330	1·2570	29·3306	30·7813	1·4507
50	20·8463	22·0545	1·2082	22·1920	23·8200	1·6280
60	14·5854	15·5230	·9396	15·6942	17·2380	1·5438
70	9·2176	9·8409	·9376	10·2057	10·9750	·7693

It will thus be seen, that the distinction between male and female life among the members of Friendly Societies, differs very little from that between the sexes in the country generally; and this difference would be considerably reduced if the necessary corrections for employments were made, as the data for male life in Friendly Societies will be composed of a much higher proportion of unhealthy trades, in relation to the whole male population of the country, than the data for female life in comparison to the whole female population. This coincidence of course tends to strengthen the confidence to be reposed in both classes of results, and brings forward an additional argument

* See Table K, No. 1, p. 57, of the "Contributions."

† See Table H, No. 1, p. 36, of the "Contributions."

against the sufficiency of certain inquiries hitherto made, showing in some instances so wide a distinction between the value of life in the sexes.

3. Duration of Life in Scotland.

A separate set of returns was procured from Societies in Scotland, and the facts embodied in them have been combined into a distinct class of tables, to which reference will be presently made. The results thus derived will be of the more importance, as serving to confirm those obtained from the English Societies; and their value in this respect is enhanced by the fact, that the Scotch returns extend over a period of twelve years, while those by the English Societies were limited to five years. The Scotch returns were also made under quite different circumstances from those of the English, and they thus act as checks on each other. The nature and extent of the original form in which the information was furnished by the returns from Scotland, have already been referred to.

The principal comparative results may be thus expressed. In the Rural Districts of Scotland the specific intensity increases in a uniform ratio, from the earliest age to the extreme of life. A comparison with the Rural Districts of England shows a higher specific intensity in the Rural Districts of Scotland till age 34; but from that till age 54 it is lower in Scotland, and from 54 to the end of the tables the specific intensity is sometimes higher and sometimes lower. A more general and comprehensive view of the value of life in the two countries will be obtained by comparing the equation of life: for age 10 it takes place between the ages 67-8 in the Rural Districts in Scotland, but between ages 68-9 in England. Again the equation for age 30 takes place in both countries between 70 and 71. Considering the different sources from which the data of the two Tables are derived, and the different periods of years over which the observations extend, the agreement in this respect is somewhat remarkable*.

In the Town Districts of Scotland, half the population dies off at the ages of 65-6; but in the Town Districts in England the same thing takes place a year earlier. It is in the City Districts of Scotland that the most marked difference is found; but when it is recollected that the only places included in the list of Scotch cities are Edinburgh, Glasgow, Paisley, and Aberdeen, and that the observations relate chiefly to the three first-named places, it will in some measure account for the very high rate of mortality. In the City Districts of Scotland there is a much lower specific intensity up to age 60, than even for Liverpool; but from that age to 80 it is higher than in Liverpool. In the City Districts for Scotland, half the population dies off between the ages of 53-4, being eight years earlier than in the City Districts of England, and five years sooner than in Liverpool, and in fact coming very close on the very worst class of results in England—namely, clerks, in which half the population was cut off at ages 51-2. But as the numbers over which the observations extend in the City Districts

* The results for the Scotch Societies will be found in Tables L, M, and N, "Contributions," pp. 64, 73, 77. The places forming the respective districts in Scotland will be found in the Appendix, Note III.

of Scotland are limited, less confidence might reasonably be placed in the results, and the excessive mortality in part assigned to the fluctuation to which small numbers are subject.

On examination, however, of the various groups of results making up the whole class for the City Districts, they were, without exception, found subject to a high rate of mortality, thus evidencing an absolute higher mortality than in the average of English cities.

The results for the three districts combined, show a less specific intensity than in England up to age 66; and from that age upwards, the figures cross each other. In the general results for Scotland, half of the population dies off between ages 64-65; but in the general results for England, that event is prolonged two years beyond that period.

Looking next to the expectation of life*, it will be found that in the Rural Districts of Scotland it is less than in England by about half a year, from ages 20 to 75; but the Town Districts of Scotland give a higher expectation than in England till beyond 70 years of age, and the City Districts of Scotland show a lower expectation of life than Liverpool up till about 50 years of age. In order to admit of better comparison, the general results for the three districts in Scotland and England will be arranged as follows for decennial ages:—

TABLE XIV.

Age.	Expectation of Life in Friendly Societies in		Difference in Favour of England in Years.
	Scotland.	England.	
20	42·7218	43·7736	1·0518
30	35·6512	36·6051	0·9539
40	28·6565	29·3306	0·6741
50	21·8122	22·1920	0·3798
60	15·0184	15·6942	0·6758
70	10·4296	10·2057	0·2239

It will be thus seen that the Rural Districts of the two countries have shown the nearest approximation; and this is precisely what would have been anticipated from a careful consideration of the elements entering into the formation of the respective Tables. In the Rural Districts of all countries, the condition of the population, as to occupation and employment, is more nearly the same than in the Town or City Districts; and since employment has been shown to have so important an effect on the duration of life, the rates of mortality should differ less in the Rural Districts, where less diversity of employment exists. Before, however, fixing definitely on the Scotch cities so high a rate of mortality, it should be kept in view that one very important element of the investigation has not yet been touched upon. In considering the condition of the English cities, it was shown how an accidental combination of certain trades would produce a very different result from the fair average of the general population; so also, in the present comparison of the Scotch with the English cities,

* Table N of the "Contributions," p. 77.

nave taken place, and one among these must be already obvious. The general results for Friendly Societies in England and Wales were found to be more favourable to life than the results for the whole population of England and Wales, and that in both sexes; so, also, were the results for the members of Friendly Societies in Liverpool more favourable than those for the whole population of Liverpool; and here it will likewise be seen that the mortality of the general population of Glasgow is greater than among the members of Friendly Societies in the City Districts of Scotland.

TABLE XVI.

GLASGOW—*Total of the Population as calculated for the 30th of June in each of the Years 1832—1841, inclusive; with the Sum of the Deaths for the corresponding years, as given in the Mortality Bills; and the Mortality per cent. during the same period.*

Age.	MALES.			FEMALES.		
	Population.	Deaths.	Mortality. per Cent.	Population.	Deaths.	Mortality. per Cent.
Under 5	167,389	18,846	10·6613	163,155	16,304	9·9929
5 — 10	139,087	2,331	1·6759	138,056	2,134	1·5457
10 — 15	127,201	989	·7775	127,512	973	·7630
15 — 20	111,753	1,209	1·0818	147,340	1,147	·7777
20 — 30	218,158	3,211	1·4718	281,626	3,292	1·1689
30 — 40	156,737	3,336	2·1284	176,405	3,228	1·8300
40 — 50	104,660	3,276	3·1301	111,731	3,001	2·6859
50 — 60	57,928	2,552	4·4054	66,086	2,628	3·9766
60 — 70	33,033	2,564	7·7619	41,084	2,651	6·4526
70 — 80	11,942	1,956	16·3791	16,212	2,244	13·8416
80 — 90	2,580	780	30·2325	4,190	1,012	24·1527
90 — 100	238	92	38·6554	368	155	42·1196
100 and upwards	10	9	90·0000	19	15	78·9476
Total	1,130,716	41,151	3·6393	1,273,784	38,784	3·0447

The difference between the equation for age 10 in male and female life for the whole population of Glasgow is 3·125 years, while in the general population of England and Wales it is a little above one year. This suggests the mention of another feature which presents itself in this inquiry. It appears that the higher the absolute value of life in any class of results, the less distinction will there be found between male and female life. Thus:—

Equation of Life for Age 10.	{	Friendly Societies in England and Wales.....	Females = 56·749	
			Males = 56·408	
			—————	·341 of a year.
	{	Total Population of England and Wales.....	Females = 53·554	
			Males = 52·308	
			—————	1·249 „
	{	Whole Population of Glasgow	Females = 41·346	
			Males = 38·221	
			—————	3·125 „

If comparisons were made between the sexes in the intermediate classes of results, a development of the same feature would be seen. As has already been stated, where the duration of life is reduced below its average standard by the prevalence of unhealthy occupations, the influence will be more strongly felt in the male than in the female sex.

If the expectation of life for the city of Glasgow* be now referred to, the remarkable depreciation in the duration of life there will appear somewhat startling. No Table of Mortality hitherto published has shown anything like so low an estimate. Liverpool has been frequently referred to as an example of the short duration of life; but a comparison of the expectation of male life for Liverpool, with the results for Glasgow will shew,

At Age 30 a higher value by 3·101 years.

„ 40	„	2·548	„
„ 50	„	1·535	„

The mortality of a population like that of Glasgow is subject to remarkable fluctuations, showing an extreme difference in some years of about 68 per cent., or a mean fluctuation of about 32 per cent. An inspection of the total male deaths for all ages, for each of the ten years 1832-1842, will render this evident.

Total Deaths in 1832	.....	4811	Total Deaths in 1837	.....	5423
„ 1833	.....	3229	„ 1838	.....	3490
„ 1834	.....	3255	„ 1839	.....	3898
„ 1835	.....	3726	„ 1840	.....	4470
„ 1836	.....	4334	„ 1841	.....	4514

It will further be seen those remarkable fluctuation are due chiefly to the mortality in mature life, and not to the mortality in infancy, as some writers have believed.

Year.	From 20 to 50.	In the First Year of Life.	Year.	From 20 to 50.	In the First Year of Life.
In 1832	1795	332	In 1837	1991	371
1833	902	306	1838	1010	336
1834	923	313	1839	966	318
1835	885	365	1840	1346	404
1836	1279	115	1841	1278	381

It appears, then, that while the extreme difference in the mortality from ages 20 to 50 is 125 per cent., for the first year of life it is only 32 per cent. If the mean fluctuation for ages 20 to 50 be taken, it will be found to be 53 per cent., while that for the first year of life is only 14 per cent. Were the inspection extended to the mortality of female life, similar results would be obtained. Notwithstanding the inferior numbers in infant life, the fluctuation is confined within narrower limits than the mortality of mature life; and this law is in obedience to the doctrine of probability, when applied to any other subject, as well as to the mortality of life. For whenever the intensity which determines any result increases—or in other words, when the probability of any event approaches unity—so also will the fluctuation in a series of events be reduced in amount.

It is evident from the preceding results of the mortality in Glasgow, that a Table of the Expectation of Life calculated for one period of years—for example, the three years, 1833, 1834, 1835—would differ

* Table R, p. 83 of the "Contributions."

widely from a table founded on the results of the succeeding period of three years, and that the next succeeding period of three years would also differ in a marked degree from either of these: it has on that account been thought the better course to embrace the results of the whole ten years. On a previous occasion, a Table of the Expectation of Life for the five years, 1836-1840, had been calculated; and the results were, for ages

$$20 = 27.624 \quad 40 = 21.711 \quad 50 = 16.590$$

bringing the expectation of life above that given for the whole population of Liverpool, in the Fifth Report of the Registrar-General. It would therefore be rash to conclude that the public health of Glasgow is inferior to that of Liverpool; for if the same means existed of calculating the mortality of Liverpool during the ten years to which the results for Glasgow relate, it might then be found that the Expectation of Life, on an average of that number of years, was overstated by the Registrar-General, whose figures were derived from the mortality of one year only.

Female life in Glasgow, as elsewhere, is of higher value than male life. Thus:—

	At Age 30.	At Age 40.	At Age 50.
The Expectation of Females is	26.8970	21.0730	15.8617
And of Males	24.8998	19.4532	14.5350
Difference	1.9972	1.6198	1.3267

TABLE XVII.

DUNDEE—*Total of the Populations as calculated for the 30th of June in each of the Years 1835—1844 inclusive; with the sum of the Deaths for the corresponding years as given in the Mortality Bills, and the Mortality per cent. during the same period.*

Ages.	MALES.			FEMALES.		
	Population.	Deaths exclusive of Stillborn.	Mortality.	Population.	Deaths exclusive of Stillborn.	Mortality.
Under 5	41,450	3,328	8.0289	41,513	3,042	7.3302
5 — 10	34,005	413	1.2145	32,622	410	1.2568
10 — 20	60,931	377	.6187	67,367	366	.5432
20 — 30	46,877	481	1.0260	67,086	569	.8481
30 — 40	39,488	562	1.4232	46,323	553	1.1950
40 — 50	24,931	585	2.3464	31,782	585	1.8406
50 — 60	14,826	485	3.2712	18,089	533	2.9465
60 — 70	8,537	528	6.1848	12,888	633	4.9116
70 — 80	4,113	476	11.5730	5,128	552	10.7644
80 — 90	831	204	24.5500	1,197	252	21.0526
90 — 100	67	13	19.4030	155	34	21.9289
100 and upwards	0	2	0	19	2	10.5263
Total	276,056	7,454	2.7000	324,129	7,531	2.3234

The preceding results seem to point out a higher rate of mortality as pervading all the groups of observations brought into comparison

from Scotland; and it is therefore to be regretted that the Registration Act does not extend to that country, and afford a certain means of solving so important a question. The subject, however in its present state, has been thought of sufficient importance to warrant the calculation of Mortality Tables for the Town of Dundee; and accordingly the following Table has been deduced from the Mortality Bills of that town for the ten years 1835-1844, and the census of the population in 1841, on the principles described for the formation of Tables I. and II*.

In Dundee the equation of male life for age 10 takes place at age 55-6, which is seven years beyond the results obtained for the whole population of Glasgow, and even two years higher than the equation of life for the members of Friendly Societies in the average of the Scotch cities†. This result will no doubt be unexpected by some inquirers, as Dundee has usually been held up as the type of unhealthy cities; but the present results show the necessity of extended observations before drawing any conclusions, the remarks made relative to the fluctuation of mortality in Glasgow being equally applicable to Dundee. The following abstract will give the comparative value of male life in the gross population of Glasgow, Liverpool, and Dundee.

TABLE XVIII.

Age.	Expectation of Life in		
	Glasgow. Table R.	Liverpool, Reg. Gen. page xxvii. 5th Report.	Dundee. Table R.
20	30·9665	33·0000	35·9632
25	27·8512	30·0000	32·4423
30	24·8998	27·0000	29·0866
35	22·1102	23·0000	25·8297
40	19·4532	21·0000	22·7017
45	16·9366	18·0000	19·8168
50	14·5350	16·0000	17·0891

The value of life in Dundee will thus be seen to stand higher than in either of the other cities. If a complete system of registration existed in Scotland, accurate means would be afforded of carrying out a satisfactory inquiry as to the relative value of life in different districts; but so far as the more imperfect system of Local Registration will admit of judging, it does not appear that the duration of life in the large towns of Scotland should be regarded as so much below that of cities in England.

For many purposes, the mode of representing the value of lives at various ages, under the expression "Expectation of Life," will be found inadequate. The method by which that value is obtained for a given age, involves the consideration of the decrements of life at every superior age; and therefore, in any table, the expectation of life,

* The Expectation of Life, as resulting from these Tables, will be found in Table R, p. 83, of the "Contributions."

† See Tables Q and T, pp. 80 and 87 of the "Contributions."

even at younger ages, will be affected by the irregularities of mortality at the older ages. It consequently sometimes happens that a comparison of different tables, especially at the younger and middle periods of life, may show an equal or nearly equal expectation, while there are in reality very different chances under the two tables of living a given number of years; and again, Expectation Tables may show very different values for the same age, when according to the nature of the data there are equal chances of living a given number of years.

From what has been said it will be seen, that although the "Expectation of Life" expresses the true average duration in years of a certain number of individuals at a given age, yet it does not represent the chances of surviving an equivalent number of years; and consequently, for medical and other purposes, in which it is required to determine the relative value, improvement, or other change which may have taken place within a given period of life, another expression must be found. The equation of life, which represents a term of years for which there is an equal probability of living, appears to be the best mode to determine the comparative value of life in different classes or different districts within the same period of years, as the expression is affected by the mortality within those ages only. In order to show the relation which the equation of life bears to the expectation of life, the expression under each form, corresponding to the decennial ages, are given for various classes of results in

TABLE XIX.
Equation of Life—England and Wales.

Ages.	England and Wales.				Friendly Societies (Females.)	
	Males.		Females.		Rural, Town and City.	
	Equation.	Expectation.	Equation.	Expectation.	Equation.	Expectation.
10	52·305	47·756	53·554	48·383	56·749	49·493
20	44·212	40·691	43·706	41·598	49·702	45·264
30	36·482	34·099	38·066	35·167	41·017	38·184
40	28·790	27·476	30·412	28·733	32·248	30·781
50	21·255	20·846	22·697	22·055	23·894	23·820
60	14·285	14·585	15·355	15·523	16·236	17·238

Ages.	Friendly Societies (Males.)							
	Rural Districts.		Town Districts.		City Districts.		Rural, Town and City.	
	Equation.	Expectation.	Equation.	Expectation.	Equation.	Expectation.	Equation.	Expectation.
10	58·375	53·258	54·315	50·537	51·743	47·913	56·408	51·810
20	49·353	45·355	45·201	42·274	43·052	40·015	47·434	43·774
30	40·813	38·407	36·517	34·575	34·920	32·860	38·972	36·605
40	32·129	30·972	28·135	27·153	27·218	26·087	30·531	29·331
50	23·609	23·470	20·053	19·973	20·056	19·927	22·344	22·192
60	15·923	16·652	12·815	13·761	13·295	13·769	14·945	15·694

TABLE XX.

SCOTLAND—*Males.*

Ages.	Rural Districts.		Town Districts.		City Districts.		Rural, Town and City.	
	Equation.	Expectation.	Equation.	Expectation.	Equation.	Expectation.	Equation.	Expectation.
10	57.474	53.051	55.828	50.743	43.371	42.637	54.567	50.803
20	48.467	44.990	46.407	42.752	34.753	34.586	45.656	42.722
30	39.995	37.783	37.106	35.040	27.831	28.635	37.478	35.651
40	31.493	30.305	28.020	27.641	21.255	22.647	29.539	28.657
50	23.266	22.898	19.441	20.742	16.409	17.386	21.917	21.812
60	15.990	16.018	11.217	13.121	12.688	13.335	15.174	15.018

TABLE XXI.

Trades in Friendly Societies (Males) England.

Ages.	Labourers. Rural Districts.		Clerks. Rural, Town & City.		Plumbers, Painters, and Glaziers. Rural, Town & City.		Bakers. Rural, Town & City.		Miners. Rural, Town & City.	
	Equation.	Expectation.	Equation.	Expectation.	Equation.	Expectation.	Equation.	Expectation.	Equation.	Expectation.
10	61.512	56.005	41.920	39.985	46.666	43.066	49.546	47.982	51.402	48.516
20	52.240	47.906	33.500	31.835	39.101	36.904	41.034	40.027	42.186	40.670
30	43.341	40.597	27.416	27.576	31.262	30.508	33.039	32.357	33.187	33.157
40	34.349	32.769	19.945	21.857	23.508	24.305	25.001	24.176	24.067	24.920
50	25.634	25.075	13.548	16.046	15.384	17.096	19.470	19.091	15.890	17.535
60	17.574	17.821	11.616	12.426	9.779	12.168	13.630	14.063	10.414	11.859

The terms in the respective columns headed Equation, were determined as follows:—

Let E_x = the number alive in the columns headed "Living" in Tables C, F, I, &c., &c.*, at the given age x .

Then $\frac{E_x}{2}$ = the number alive at an advanced age, $x + n$ which will always be intermediate between the proximate years of age $x + n - \phi$, and $x + n + 1 - \phi$, the fraction ϕ of which is determined as follows:—

$$\lambda(E_{x+n-\phi} - E_{x+n}) - \lambda(E_{x+n-\phi} - E_{x+n+1-\phi})$$

An inspection of the preceding Tables will show that at the earlier ages the equation of life always exceeds the expectation, and that at those ages there is always an even chance of outliving the period of years represented by the Expectation of Life; but the converse is the case for the older ages. It will also be further seen, that in those Tables giving a higher absolute value of life, the equation retains its superiority over the expectation, till a more advanced period of years; or in other words, if the equation and expectation of life in any table be compared, the more advanced the period of life at which the two expressions approximate to equal values, the higher is the absolute value

* For Tables C, F, I, &c., see "Contributions."

of life throughout that table. An example of this will be seen in observing the respective terms for the City and Rural Districts, in the former of which the approximation happens ten years earlier than in the other: again, if the results for the labourers in the Rural Districts be compared with the results for clerks, thirty years' difference will be found; and on comparison of the results for other classes in Tables XIX., XX., and XXI., intermediate periods of approximation will appear.

4. *Influence of Locality on Sickness.*

The next part of this question to be brought under consideration is the influence of locality on the amount of sickness among the members of Friendly Societies*.

Owing to the greater practical convenience of collecting and arranging the data, as well as of subsequently applying the results to the more useful purposes of Friendly Societies, the amount of sickness throughout the whole of this paper is invariably expressed under the denomination of weeks. For example, in Table XXII., opposite to age 35, and under the head "Rural Districts," the decimal expression $\cdot 8991$ signifies that the average amount of sickness to each individual per annum is that fraction of a week. And again, opposite the same age, in the column "City Districts," the average amount of sickness to each person in the course of a year is $1\cdot 2372$ weeks. When, however, it is required to change the expression to the more scientific denomination of the fraction of a year, that may be easily done by multiplying any of the results by $\cdot 019178$.

An examination of the rates of sickness as given for the Rural Districts will shew that it fluctuates up to the age of 32, and that from that age up to 87 there is a uniform and gradual increase. In the Town Districts the rate of sickness will be found subject to a similar increase from the age of 27 upwards; and in the City Districts the rate increases throughout the whole range of the table. A comparison will shew a higher rate of sickness in the Town than in the Rural Districts, throughout the whole period of life. The rate of sickness in the City Districts will also be found higher than in the Rural Districts, from 23 to 63 years of age; it then continues at a lower rate up to the age of 75, when it again rises, and continues higher till the end of life. In the City Districts, from the age of 24 to 44, the sickness is also higher than in the Town Districts; but from 45 to 57 the rate

* In Tables E and L, pp. 16 and 64 of the "Contributions," the amount of sickness is given among a certain number of persons, at every year of life, expressed in weeks and decimals of a week; and in an adjacent column will be found the amount of sickness among the same number of persons in quinquennial periods of life, also the average amount of sickness to each individual per annum. In the same Table the amount of sickness under the various arrangements described for each of the districts recognised in the Tables of Mortality is also given; and an inspection of the last column will give a general idea of the relative amount of sickness in those districts.

Table V., p. 92, has been formed from the last column, by interpolating the terms for the intermediate years of age, by the method of third differences; and the adjusted results were afterwards obtained in the same manner as that described for the Rates of Mortality in England and Wales, among the members of Benefit Societies, in the early part of this paper.

in both districts differs but little. After 57 years of age to the end of life, there is a much higher rate of sickness in the Town than in the City Districts. The following table will give a general view of the relative amount of sickness in the various districts:—

TABLE XXII.

Ages.	Average Sickness per Annum to each Person—expressed in Weeks.			
	Rural Districts.	Town Districts.	City Districts.	The Three Districts combined.
20	·8387	·8564	·5659	·8398
25	·8630	·8649	·9650	·8744
30	·8753	·8794	1·1059	·9107
35	·8991	1·0114	1·2372	·9836
40	1·0677	1·2669	1·4663	1·1808
45	1·2537	1·8323	1·8125	1·4939
50	1·5896	2·5559	2·3831	1·9603
55	2·3260	3·3029	3·3036	2·7047
60	3·8531	4·9132	4·4973	4·1657
65	7·6305	9·1387	5·9019	7·7501
70	14·1949	15·4995	9·9610	14·0391
75	20·7848	24·0134	22·3864	21·4661
80	24·3545	32·9841	35·2065	26·9405

Sickness will be found to follow to some extent the same law with regard to the influence of locality, that was observed to prevail in respect to mortality; being least in the Rural Districts, and increasing in amount in the other districts; but it will be observed that the relation of cause and effect generally supposed to exist between sickness and mortality is not here manifested—in fact, the highest ratio of sickness is sometimes found associated with a favourable rate of mortality. In order to shew, however, the merits of this hypothesis for the general results of the three districts, a table is subjoined shewing the increase per cent. in the rate of mortality in the Town and City Districts above the Rural, also the increased rate of sickness in the same districts at the corresponding ages.

TABLE XXIII.

Ages.	Increased Mortality per Cent. above the Rural Districts in the		Increased Sickness per Cent. above the Rural Districts in the	
	Town Districts.	City Districts.	Town Districts.	City Districts.
20	27·6008	12·7200	2·1104	32·7650
30	5·4852	30·5204	0·4684	26·3338
40	20·4517	75·7842	18·6560	37·3419
50	35·5833	61·6666	60·7220	49·9182
60	51·5277	41·0185	27·5130	16·7200
70	43·2990	26·7248	9·1906	29·8191

Abundant evidence in addition to this is furnished out of the present materials illustrative of this point; for example, labourers, al-

though influenced by the most favourable rate of mortality, are found to be subject to as high an amount of sickness as the general average; and so also are some other occupations, in which the rate of mortality is also favourable, found subject to a rate of sickness much above the average.

Again, the sickness among the sixteen trades formerly referred to is less than the general average, although, as has been shewn, they experience a greater mortality. Bakers also, at the early and middle periods of life, are less subject to sickness than the general average, and among them there is likewise a higher mortality. The class butchers seem to experience a very high rate of mortality, although not subject to above the average amount of sickness. In applying the test of mortality to various localities and employments there is no difficulty, but the case is very different in viewing sickness as an index to the sanitary condition of any trade or of any locality. What constitutes sickness in one case, is often a very different thing from that in another. The standard seems too indefinite and capricious; and although the results as obtained may be considered perfect for all the purposes of Friendly Societies, a careful inquiry will shew their vague nature for medical and other scientific purposes, unless carried further than the mere amount of sickness, without regard to the circumstances under which it has taken place, and the causes producing it. Taking two occupations—tailors and clerks—which happen to be of readiest reference, they are found subject to a very high rate of mortality; still they do not seem, particularly clerks, to be subject to so much as the average amount of sickness; and on consideration of the nature of those employments, it will immediately suggest itself, that the same trivial circumstances which would be sufficient to disable sawyers, and also colliers and miners, would have little effect on those following quiet occupations. Sawyers, colliers, and miners are subject to accidents and various injuries which cannot be considered constitutional disease or sickness; yet it entitles them to relief from Benefit Societies, and they will of course be returned on the sick list. Tailors and clerks are less subject to those accidents, and accordingly their sickness is also less; the other classes, particularly colliers and miners, being much above the average.

But the most striking refutation of the theory, that sickness and mortality bear the relation to each other of cause and effect, will perhaps be derived from a comparison of the general results of mortality in Friendly Societies in England for all districts combined, with that for Scotland*. The result of this comparison will be, that the rate of mortality in Scotland among the members of Friendly Societies is much higher than among the same class in England; and if the theory just recited were to hold good, there should also be found a greater amount of sickness in Scotland; but such is not the case, for instead of there being an increased ratio of sickness, the ratio is actually below that in England. Nothing further need, therefore, be said on this part of the subject; but the argument may be rendered more obvious by an inspection of the following abstract, in which it will be seen that while the excess of mortality is uniformly against Scotland, the excess of sickness is as constantly against England.

* See Tables F and M, pp. 25 and 73 of the "Contributions."

TABLE XXIV.

Age.	Mortality per Cent. in		Excess of Mortality in Scotland per Cent.	Average Sickness yearly in		Excess of Sickness in England per Cent.
	England.	Scotland.		England.	Scotland.	
30	·7563	·7926	4·7997	·9107	·8376	8·0268
40	·9386	1·0767	14·7134	1·1808	·9767	17·2849
50	1·4267	1·5830	10·9538	1·9603	1·8548	5·3818
60	2·5054	2·9096	16·1331	4·1657	3·9423	5·3628

The nature of the information on the Schedules relating to the Societies in Scotland would evidently satisfy many speculations as to the cause, duration, and mortality of sickness and disease; but as it is proposed to give in this paper a simple representation of the amount of sickness only in the different districts, all inquiries, however interesting and instructive, as to the ratio of sickness to mortality, under the various circumstances which present themselves of employment and disease, must for the present remain untouched.

The next part of the subject naturally arising in this paper is, the relation which the average amount of sickness, as developed by this

TABLE XXV.

Sickness per Annum to each Person—expressed in Weeks.

Age.	Highland Society.	Ansell.	Three Districts combined, Table V.	Age.	Highland Society.	Ansell.	Three Districts combined, Table V.
21	·575	·780	·8453	46	1·032	1·411	1·5688
22	·576	·785	·8515	47	1·108	1·475	1·6528
23	·578	·791	·8585	48	1·186	1·544	1·7461
24	·581	·798	·8661	49	1·272	1·619	1·8486
25	·585	·806	·8744	50	1·361	1·701	1·9603
26	·590	·815	·8834	51	1·451	1·791	2·0812
27	·596	·825	·8915	52	1·541	1·890	2·2161
28	·603	·836	·8988	53	1·633	1·999	2·3650
29	·611	·848	·9052	54	1·726	2·120	2·5279
30	·621	·861	·9107	55	1·821	2·256	2·7047
31	·631	·876	·9154	56	1·918	2·410	2·8956
32	·641	·893	·9250	57	2·018	2·586	3·1371
33	·652	·912	·9396	58	2·122	2·788	3·4293
34	·663	·933	·9591	59	2·230	3·021	3·7722
35	·675	·956	·9836	60	2·346	3·292	4·1657
36	·688	·981	1·0130	61	2·500	3·611	4·6099
37	·702	1·009	1·0474	62	2·736	3·991	5·1904
38	·718	1·040	1·0869	63	3·100	4·448	5·9073
39	·737	1·074	1·1313	64	3·700	5·001	6·7605
40	·758	1·111	1·1808	65	4·400	5·672	7·7501
41	·784	1·151	1·2353	66	5·400	6·486	8·8760
42	·814	1·195	1·2939	67	6·600	7·471	10·0679
43	·852	1·243	1·3565	68	7·900	8·659	11·3257
44	·902	1·295	1·4232	69	9·300	10·086	12·6494
45	·962	1·351	1·4939	70	10·701	11·793	14·0391

inquiry, bears to the amount of sickness, as hitherto shewn in other Sickness Tables.

The only tables to which it is deemed necessary to make reference, are those contained in the Highland Society's Report for 1824, and the tables given in the highly valuable work by Mr. Ansell on Friendly Societies, and published in 1835 under the superintendence of the Society for the Diffusion of Useful Knowledge. The following will shew the relative amount of sickness per annum to each person at given ages according to those tables, and also according to the results of this inquiry.

For the sake of a more convenient and general view of the relative merits of those different results, the following abstract is given.

TABLE XXVI.

Age.	Annual Amount of Sickness to each Person—expressed in Weeks.				
	Highland Society.	Ansell.	Average of all Districts, Table V.	Excess per Cent. above Highland Society.	Excess per Cent. above Ansell.
20	·575	·776	·840	31·5476	7·6190
30	·621	·861	·911	31·8331	5·4884
40	·758	1·111	1·181	35·8171	5·9272
50	1·361	1·701	1·960	30·5612	13·2142
60	2·346	3·292	4·166	43·6869	20·9798
70	10·701	11·793	14·039	23·7766	23·0636

The remarkable increase in the amount of sickness, as shewn by the present results, beyond the two other tables, will no doubt appear very startling to those not intimately familiar with the condition of Friendly Societies throughout the country. The rate of sickness as given in the Table of the Highland Society, has been long and generally acknowledged to be much below the actual average, and even so far back as 1825 it was thought unfavourably of by a Committee of the House of Commons. It is unnecessary to enter into the objections against the nature and source from which the data for the Highland Society's Table were obtained, as that subject has been amply discussed elsewhere. For some time after Mr. Ansell's work appeared, it was thought that contributions calculated according to the increased amount of sickness shewn in his tables would render Friendly Societies perfectly safe; but instances occur almost daily of Societies breaking down whose contributions approximate to those tables; and recently the increased amount of sickness has become so apparent to the members of some of the best regulated Societies, that meetings have been held, and reports of a very clear and apposite kind published, pointing to the increased amount of sickness as the cause of their falling condition. A knowledge of circumstances of this kind first led to the present inquiry, the original object of which was simply to answer the question, whether Friendly Societies actually were subject to a higher rate of sickness.

Mr. Ansell's data had reference to the five years 1823—1827; and it is difficult to account for the difference between his tables and the present results, unless it be considered that the imperfect manner in which the affairs of Friendly Societies at that period were managed, did not allow of so accurate information being then obtained as now, when required by Act of Parliament to make quinquennial returns. In Scotland, at the time even of collecting the data for this inquiry, it was found that quadruple the Societies would have filled up schedules in competition for the prizes offered, but were prevented doing so by the incomplete system in which their books were kept. It is not improbable that the difference of the two classes of results may be partially accounted for by the smallness of the numbers over which his observations extended, as in the aggregate they amounted to 24,323 years of life only, or about 5,000 persons for a period of five years. If this fact is considered, and at the same time the irregularities which peculiarity of employment and other circumstances have been shewn to produce, it will not be difficult to account for the dis-

TABLE XXVII.

Comparative Amount of Sickness in various periods of Years according to the Sickness Tables of the Highland Society, the Tables by Mr. Ansell, and the Results of this Inquiry.

From Age	Amount of Sickness in each Period of Years, expressed in Weeks.				
	Highland Society.	Ansell.	Average for the three Districts.	Excess per Cent. over Highland Society.	Excess per Cent. over Ansell.
20—30	5·870	8·060	8·7145	32·641	7·510
30—40	6·728	9·535	9·9120	32·1227	3·8035
40—50	9·670	13·395	14·7999	34·6617	9·4926
50—60	17·827	22·562	27·0894	34·192	16·712
60—70	47·982	58·717	77·3029	37·929	24·042
70—80	.....	.....	205·3562	.....	.....
20—40	12·598	17·595	18·6265	32·3652	5·5378
30—50	16·398	22·930	24·7119	32·8775	7·2107
40—60	27·491	35·957	41·8893	34·3723	14·1618
50—70	65·803	81·279	104·3923	36·965	22·140
60—80	.....	.....	282·6591	.....	.....
20—50	22·268	30·990	33·4264	33·3820	7·2888
30—60	34·219	45·492	51·8013	33·9416	12·1798
40—70	75·473	94·674	119·1922	36·6796	20·3703
50—80	.....	.....	309·7485	.....	.....
20—60	40·089	53·552	60·5158	33·7545	11·5074
30—70	82·201	104·209	129·1042	28·5841	19·2831
40—80	.....	.....	324·5484	.....	.....
20—70	88·071	112·269	137·8187	36·0965	18·5386
30—80	.....	.....	334·4604	.....	.....
20—80	.....	.....	343·1749	.....	.....

crepancy. If the nature of Mr. Ansell's Treatise had required an enumeration of these features, it would have been interesting to have traced the cause.

It is not believed that the mere fact of small numbers would, of itself, be sufficient to account for the difference, without at the same time a peculiarity in the combination of the employments of the persons composing those numbers; for not the least remarkable feature which has appeared in the present inquiry is, the uniformity of the results as to sickness, with even smaller numbers than those included in Mr. Ansell's statement, when all the facts recorded were under similar circumstances as to locality and employment.

In order to give a still further and more comprehensive view of the several tables over periods of years, the following arrangement may be useful.

An inspection of the fourth and fifth columns of the above Table will afford the most conclusive evidence of the increased ratio of sickness above that set forth in previous tables. To those interested in the progress of Friendly Societies the results are highly important, as they will demonstrate the impossibility of permanence in those institutions on their present foundations. Considering the immense number of those Societies which have broken down, it is lamentable to think that so little should have been done to ascertain the real nature and extent of the risks to which they are subject. It is still more remarkable that so many legislative enactments should have occupied the attention of the Government of the country from time to time, and that Committees also of the House of Commons should have had the condition of those Societies for several years under consideration, without any practical measure being carried out for collecting and arranging data in a proper shape to point out the true character of the liabilities to which they are subject. In fact, the stimulus given to the formation of those Societies by some recent Acts of Parliament should be regarded as an evil rather than as a benefit to the working classes. An immense number of Societies were formed in a very short period, and their contributions regulated by the most delusive and inadequate data, so that at the present time very few are to be found calculated to survive many years. Under a scientific and amply developed system, those Societies would be calculated, in a few years, to completely remove the cause of nearly all that poverty, distress and misery which haunt our manufacturing towns, and fill our workhouses with the working classes of the country; but owing to the imperfect and unstable foundation on which they are at present built, instead of being a help and a support to a poor man, they involve him in those difficulties for which he might otherwise have provided. On becoming a member of such a Society, he reasonably looks forward to it as a support for his declining years, and a protection during periods of sickness and disease; but ultimately, at the very time when assistance is required, he discovers that the Society has been formed on a ruinous plan, that the increasing years and infirmities of its members have absorbed all its funds, and that those surviving must be thrown destitute on the parish as a public charity. It is to this point, by the most ill conceived of all proceedings, that the legislation of the Government has hitherto tended. Every facility and encouragement are

given to the formation of Societies, without any help or information for their management or guidance. The ship is cast upon the waves without rudder or compass, and the safety of the vessel left to accident and chance.

As already stated, a Committee of the House of Commons reported in 1825, unfavourably of the Table of Sickness furnished in the preceding year by the Highland Society; still no other data were supplied on which any more confidence could be placed; the consequence was, that Societies were formed, and continued to be managed, on calculations resulting from the same data; and, even up to the present time, thousands of those Societies are conducted either on those terms, or terms still less adequate to carry out the purposes contemplated.

An inspection of Column 4 of the preceding Table will show that, in the decennial periods of life from 20-70, the Friendly Societies in England and Wales experience an excess of sickness of from 32 to 37 per cent. above that indicated in the Table of the Highland Society, or an average increase of sickness over the whole of that period of fifty years of 36.096 per cent.; or, in other words, Friendly Societies actually experience about 138 weeks' sickness in that fifty years, while the Highland Society Table would lead them to expect eighty-eight weeks only.

The ruin of any Society, under such conditions, is inevitable. There are many other errors in the rules of Friendly Societies, connected with the various benefits which they hold out, calculated to ruin their schemes; but if it were necessary here to cite instances in which Societies have suffered from the simple feature of excessive sickness, abundant instances could be pointed out; but the internal evidence contained in this paper, of the actual rate of sickness experienced by Societies in the aggregate, must also prove that individual Societies have been sufferers. In illustration of this point, it is impossible to avoid quoting a passage from a very able Report, dated 8th of February, 1841, submitted to the Edinburgh Compositors' Society, by a Committee appointed to revise the laws. They state, in their Report, that the contributions and benefits of the Society were regulated by the data of the Highland Society; and, in order to discover whether the experience of the Society has harmonized with the original data from which their calculations resulted, an investigation of the actual sickness in the Society was made, of which the following is an abstract:—

TABLE XXVIII.

Age.	Number of Members.	Actual Sickness in the Society.		Amount of Sickness expected by the Highland Society Tables.		Excess of Actual Sickness.	
		Weeks.	Days.	Weeks.	Days.	Weeks.	Days.
20—30	732	979	1	417	0	562	1
30—40	580	863	5	398	1	465	4
40—50	126	191	5	129	3	62	2
50—60	11	12	2	20	4	8	2
Total.....	1449	2047	1	965	2	1081	5

It will thus be seen that the actual sickness experienced by this Society has exceeded that contemplated by the Highland Society Tables by no less an amount than 112 per cent.

The following gives the amount of sickness as experienced by this Society, and also according to the results of various tables.

		Excess of Sickness in Compositors' Society.			
		Weeks. Days.		Weeks. Days.	
Amount of sickness in Compositors' Society	....	2047	1	.....	....
Ditto, Highland Society Tables	....	965	2	1081	5
Ditto, Ansell's Table....	....	1357	0	690	1
Results as given in this paper, City Districts, Table V.	....	1748	0	299	1
Results as developed in this investigation.	{	2000	0	47	1
Printers	....	2000	0	47	1
Colliers and Miners	....	2146	0	—98	5
less sickness in Compositors' Society than among Colliers and Miners.					

It will thus appear, that while there was in the Society an excess of 112 per cent. above the Highland Society's Table, and also an excess of 51 per cent. above Mr. Ansell's Table, there is an excess of only 17 per cent. above the results obtained in the present inquiry, for the average of all trades in the City Districts, and of 2 per cent. above the general class printers, which includes both compositors and pressmen; but there is at the same time also actually less sickness than among colliers and miners by nearly 5 per cent.

It has been shown that particular trades and employments are subject to different degrees of sickness and mortality, and the importance of this element in considering the health of towns, and the influence of locality on the duration of life, has already been pointed out; but in viewing the condition of Friendly Societies, the necessity of considering the peculiar effect of certain trades and occupations must appear to be of vital importance. A most remarkable disparity exists between the rates of sickness prevalent in different places and in different employments, and Societies may run the greatest hazard by incautiously adopting each other's Regulations or Tables; for so great is the distinction which obtains between the liabilities incurred by members of different trades, that what would be sufficiently safe for one Society might completely ruin another. It may seem to some that the excessive amount of sickness experienced by the Compositors' Society may be accounted for by the fluctuation in small numbers, but on reference to the Report itself such will not be found to be the case. The facts extend over a term of sixteen years, and the results for the various periods are pretty uniform, and cannot be looked upon as the result of any accident, but must be regarded as a distinctive and proper feature of that trade to which the members of the Society belong.

In calculating tables for the guidance of such a Society, it would evidently not be safe to assume the results for the general average of the country or a given district as a sufficient basis to proceed upon; for, allowing such to be the case, and adopting even the present results as a standard of calculation, there would still be 17 per cent. of the sickness in the above Society unprovided for. As remarked in respect of the rates of mortality in different trades and occupations, so also may it be said of sickness, the present inquiry, therefore, cannot be

regarded as complete till the results for the various employments are published.

Other Societies in Edinburgh, it will be seen from a passage presently to be quoted from the Report in question, have also experienced an increased amount of sickness beyond the rates of the Highland Society's Table, although the sickness in those Societies has not equalled in amount that of the Compositors' Society. It is stated that the sickness in those Societies amounted "on an average to no less than 87 per cent. more than the Highland Society's rate." Considering this statement, from the correctness of detail in other parts of the same report, to be correct, it seems to be a very remarkable coincidence, that in the City Districts, being that with which those Societies should be brought into comparison, there is, according to the results of this investigation, at the same term of life also exactly 87 per cent. more sickness than given in the Highland Society's Table. From 20 to 60 years of age, according to the Highland Society's Table, (see page 98,) there is forty weeks' sickness to each person; but according to the City Districts, Table XXII., there is seventy-five weeks' sickness, or 87 per cent. more than given in the Highland Society's Table.

The practical advantage of thus recognising particular districts and occupations is obvious; for had either of the preceding questions been tested by the results for the general average, no satisfactory solution could have been offered. Hence the reason why some Friendly Societies go on prospering, while others, under apparently the same management and scheme, survive but for a short term of years, to ultimately involve their members, when most in need of support, in ruin. The following extract from the Report of the Committee in question is important:—

"The average annual sickness to an individual is as follows:—

	Compositors' Society.					Highland Society.				
	Weeks.	Days.	Hours.			Weeks.	Days.	Hours.		
From 20 to 30 years of age	1	2	1	.....	0	4	3	
„ 30 to 40 „	1	2	22	.....	0	4	19	
„ 40 to 50 „	1	3	3	.....	1	0	4	
„ 50 to 60 „	1	0	17	.....	1	6	3	

"From a comparison of these two rates, it will be seen that the sickness experienced by this Society has been more than double that given by the Highland Society. Since ascertaining this result, the Committee have made various inquiries in order to ascertain how far this increase corresponded with the experience of other Societies established on similar principles; and they have to report as the result of these inquiries, that in Heriot's Benefit Society, the School of Arts, the Goldsmiths' Equitable, the Journeymen Goldsmiths' and in the Cabinet and Chairmakers' Societies, a very great increase had also been experienced, amounting, on an average of these Societies, to no less than 87 per cent. more than the Highland Society's rate. Great, however, as this increase appears, it is easy to be accounted for when the state of Societies is considered during the period embraced by the Highland Society's inquiry. It is well known that up till the period of the publication of the Highland Society's Report, Societies generally partook very much of a charitable character, no member being

entitled to benefits unless he was in indigent circumstances. Now, when it is considered that the Highland Society's rate of sickness was deduced from the amount of sickness experienced by the 79 Societies above mentioned, during a period when they were formed upon this charitable principle, it is not to be wondered at that now, when they are established upon strictly insurance principles, and when, in consequence, each member claims to the utmost extent of the benefits, the sickness should be found to be so much greater than was at first supposed. This, the Committee conceive, is quite sufficient to account for the great disparity between the rate of sickness given by the Highland Society, and that now found to occur among Societies."

The preceding comparisons did not extend beyond 60 years of age; but, as will appear from subsequent illustrations to be given in this paper, the claims to be made by members after passing their sixtieth year become generally so alarming as to be the usual means of awakening Societies to the danger of their position. For example, although in the Compositors' Society all the members were under 60 years of age, still there was a large amount of what is called permanent sickness. At page 6 of the Report in question, it will be seen that of the members actually sick,

91.0 per cent. had $7\frac{1}{2}$ weeks' sickness each;			
3.5	„	69	„
and 5.5	„	246	„

It will thus appear, that the amount of sickness among 5.5 per cent. of the members was actually more than double that experienced by 91 per cent. of another class of the same Society. When the subject of permanent sickness is brought forward, its relation to age, its effect on the funds of a Society, and the methods by which the future liabilities of a Society may thereby be determined, will be amply discussed.

Having entered so fully into the characteristic features of the Highland Society Table, in relation to the results of this inquiry, a simple inspection of Table XXVII. will be sufficient to shew to what extent Mr. Ansell's Table is liable to the same objections. At the decennial periods of life from 30—70, it will be seen that there is an excess of sickness in the Friendly Societies in England and Wales over Mr. Ansell's Table, varying from 4 to 24 per cent., or a mean difference over the whole of that period of forty years of 19.283 per cent. This excess of sickness, as well as all the other results in Table XXVII., are derived from making Table XXII. the standard of comparison; but if Mr. Ansell's Table were taken as the standard of comparison, the deficiency in amount of sickness over that period of years would be 23 instead of 19 per cent., and at ages 60—70 the deficiency would be 31 instead of 24 per cent., as given in Table XXVII., or a deficiency of nearly one-third. But in regarding that table as a general guide for Friendly Societies, its inadequacy for many cases will instantly appear by making it bear on the results of Table XXII. for the City Districts, in which, as already stated, the amount of sickness from 21—60 years of age, is seventy-five weeks, being an excess over Mr. Ansell's Table, for that period of life, of no less than 41 per cent. The greatest care and discrimination should therefore be exercised, in established Friendly Societies, not to adopt general results for the

guidance of particular classes. The laws of sickness and mortality are under peculiar modifications in each class, and must be developed before any safe practical conclusions can be arrived at, deserving of public confidence.

The following are the results of a combination of the elementary data of some interest, in a form not hitherto attempted, and from which some useful conclusions may be drawn. In the preceding tables the rate of mortality has invariably been regarded in relation to every member of the Society or Societies, at the given ages; but in column 1 of the following table will be found the results of a different combination. All the members at every year of life, or rather all the members of exactly the same age, being placed into one group, it was then observed how many of these had actually experienced sickness during the course of that year of life. And these being abstracted from the total number of members of the same age, column 1 was deduced, expressing for quinquennial periods of life the per centage of members that are actually sick in the course of one year; for example, out of every hundred members aged 31—35 in a Society, twenty-one will be on the sick list during some part of the year; but of the same number of members aged 61—65, at least thirty-five members would be sick during some period or other of the year.

TABLE XXIX.

Age.	Per Centage of Members sick during each Year.	Ratio of Sick Members to every 100 not sick in every Year.	Mortality per Cent. among those actually sick.	Sickness per annum among those actually sick.	Total Amount of sickness to each death.
11— 15	21·9565	28·1337	·9901	4·1231	416·4290
16— 20	22·0743	28·3273	2·8571	3·5887	125·6032
21— 25	22·0386	28·2686	3·0539	3·8518	126·1271
26— 30	21·6997	27·7134	3·3271	4·1921	125·9977
31— 35	21·0147	26·6058	3·7592	4·3585	115·9411
36— 40	21·5471	27·4650	4·0686	4·9463	121·5732
41— 45	22·9858	29·8463	4·5306	5·9418	131·1468
46— 50	24·6042	32·6333	5·1657	6·8556	132·7123
51— 55	27·6422	38·2022	6·2401	8·5104	136·3839
56— 60	30·2424	43·3535	7·2732	10·9261	150·2235
61— 65	35·5676	55·2015	8·6163	15·1975	176·3808
66— 70	46·8493	88·1443	9·6004	24·2217	252·2988
71— 75	58·3750	140·2400	12·1306	32·6275	268·9679
76— 80	73·5916	278·6667	11·3636	36·2367	318·8876
81— 85	74·4624	291·5790	18·4116	37·7633	205·1064
86— 90	79·4872	387·5000	17·2043	41·0829	238·7943
91— 95	50·0000	100·0000	.....	39·2450	.....
96—100	.....	.....	.....	.....	.....

An inspection of column 1 will shew, that from the younger ages up to the period 31—35, the ratio or chance for any given member to be sick diminishes; but that from that period of life upwards, the tendency for any given member to be sick increases in a uniform and regular series. No table of this kind has hitherto existed; and it is

believed, that in addition to the more general purposes of Vital Statistics, it will be practically useful to Benefit Societies, in enabling them to determine whether the numbers on their sick list be greater or less than the average. Table XXII will afford a means to determine whether the total amount of sickness in a Society be greater than the average; but the present table simply points out the proportion of members to be expected on the sick list, and is perhaps more important than the other, as a test to the means of selection adopted for the admission of members.

Column 2 is simply a modification of column 1, and needs no explanation further than to state, that it will afford a ready means of testing the relation of the sick to the non-sick members in any one year, when placed in separate groups, as is generally done in Benefit Societies.

In preceding tables the rate of mortality was given for the general population of Friendly Societies; but in the third column of the foregoing Table will be found the mortality per cent. among those persons actually sick. The mortality among the population generally has been shewn to increase with age; so also does the mortality among those persons actually sick increase with age.

In the quinquennial period of life 21-25, the mortality among those sick is 3.0539 per cent.; but in the advanced period of life 66-70, the mortality is increased to 9.6004 per cent., or more than three times that of the other period. An inspection of this column will shew that there is a uniform and gradual rate of increase of mortality.

Tables of this kind are calculated to throw important light on the subject of Vital Statistics. A chronological series would point out any change or modification that may have taken place in the intensity and severity of disease. By the aid of the information given in column 3, premiums may easily be determined for the assurance of lives while actually sick; but as the results in that column do not distinguish sickness under particular diseases, a knowledge of the disease under which the patient might be suffering would be of no assistance to parties undertaking the risk; but if particular diseases, with the sickness and mortality under each, were given in separate classes, then the results would apply to given diseases, in the same manner in which the above results will apply to sickness in general, irrespective of disease. An application of columns 1st and 3rd will afford the means of measuring the exact liabilities of a Friendly Society; and if the same means were available to an Assurance Company of ascertaining the ratio of its members sick, the principles of determining the liabilities in those Companies would undergo an important change.

Suppose that in any particular Society containing 3,647 members, equally distributed over the ten quinquennial terms of life from 20 to 70 years of age, one thousand of those should be found on the sick list in the course of a year, and of one thousand persons found sick, fifty-six deaths would take place in that year; but if in the actual result the balance of those numbers was in any way disturbed, that circumstance would tend to shew whether the selection of lives in the Society was of a favourable or unfavourable character.

The results in column 3 were obtained by direct observation; but

it is evident that if m is made to represent the rate of mortality per cent., and a the results in column 1, then

$$\frac{m \times 100}{a} = \text{column 3.}$$

It is obvious that in applying the results in this table to any practical purpose, independent calculations must be made for each term of years, otherwise errors of the same nature to those pointed out at page 41 would affect the result.

Column 4th of the same table will be found to represent the amount of sickness per annum among those actually sick. From the age of 15 upwards, the amount of sickness will be found to increase in a regular and uninterrupted series. At the term of life 21-25, there is 3·8518 weeks' sickness in a year to each person, but at the term 66-70 there is 24·2217 weeks' to each person actually sick.

Without any further inquiry on this point, the manner in which it will bear on what is called permanent sickness in Friendly Societies is obvious. It will thus be seen, that not only have advanced years a greater liability to sickness, but that, once on the sick list, its duration receives a most remarkable increase. It will also be further seen, that at the two terms of life 21-25 and 66-70, the relative chances of being sick are in the ratio of 220 to 468, while the mortality at the same terms of life is in the ratio of 31 to 96 among those actually sick; and that the amount of sickness to those persons at the respective ages, shows the remarkable disparity of 39 to 242.

The cares, anxiety, and suffering with which the decline of life is thus beset, appear to form a most striking contrast to the improvident carelessness with which in youth any provision for those calamities is regarded. "If any man will not work, neither shall he eat;" and as "the time cometh when no man can work," it is in the summer of life that abundant provision must be made for the vicissitudes of that winter which incapacitates for labour; but how mortifying must be the disappointment which falls on the hopes of those patient contributors to Friendly Societies, who, after thirty or forty years' experience, find in the decline of life, when thrown by their infirmities on those Societies for support, no brighter prospect than the severe and harassing privations of pauperism, or the consolations of the workhouse.

The results in column 4 may be obtained in the same manner as that just described for column 3, viz.;—Let s represent the average sickness per annum, as given in Table XXII, and a the results in column 1 of Table XXIX; then

$$\frac{s \times 100}{a} = \text{column 4}$$

It must be kept in view, that the results in this column, as well as those given in the whole of the same table, will be much influenced by local circumstances and peculiarity of employment, and that it is not to be thought that they can be applied with safety to all Societies promiscuously. Considerable experience and discrimination will always be required, to determine on the due application of many of the most important practical results here produced.

Perhaps the most curious and interesting part of the preceding

Table is column 5, as it presents some remarkable and novel features connected with Vital Statistics. A careful survey of the figures in that column will shew, that although, as age advances, the human constitution has a greater tendency to decay, and greater liability to sickness, still it presents the apparent anomaly of having in advanced life a greater power of enduring sickness than in younger life; and yet, although there is less power to resist the approach of disease, there is a higher capability of sustaining its insidious and destroying agency.

At the period of life 31-35, it will be seen that for every 116 weeks of sickness there is one death; but at the term of life 66-70, there is only one death for 252 weeks of sickness; or in other words, a greater amount of sickness is required to destroy life at advanced ages than at younger ages.

This peculiar feature, which seems to have been unexpected by those giving attention to such subjects, may be explained in several ways. Many of the diseases prevalent in younger life disappear in after years; and, in passing from the diseases peculiar to youth, other diseases ensue, which, although not so acute in their nature, are yet fatal in their results; and thus the change from the acute to the more chronic form of disease will impart increased duration, but not severity, to the sick-list of a Society. Again, many fatal diseases of youth, such as Consumption and other Diseases of the Chest, do not to any great extent incapacitate from labour; and in those diseases the mortality may be high, while the amount of sickness is small.

Nothing like a proper enumeration of all the practical applications of the preceding table is here contemplated; but it may not be out of place to refer to a few of the more obvious uses to which it may be applied. In Friendly Societies, a correct record of the amount of sickness among the members will afford a means of predicting the number of deaths to be looked forward to, as well as the class of members among which such deaths are most to be expected. Investigations into the affairs of a Society will also be much aided by a skilful survey of the relative amount of sickness to the deaths among the members. Provided that, over a sufficiently long period, an unusually large amount of sickness was found to prevail in relation to the number of deaths, it might be safely inferred that some peculiar element affected the results; but if both sickness and mortality should show a marked augmentation beyond the calculated numbers, then such a feature might be regarded as evidence of an inferior condition of health among the members of that Society. For the more important purposes of Medical Science, the results in column 5 are easily available. Perhaps no simpler numerical test could be offered of the efficiency of particular modes of treatment; but to apply the results here given with much success, the figures should have been classified according to the sickness and mortality of particular diseases. A portion of the elementary data will admit of such a classification; and it is intended to publish the results on some future occasion.

Suppose a Medical Practitioner to have within the circle of his patients one thousand persons, whose ages vary from 21 to 70 years, and equally spread over that term of life; according to the results here given, he ought to expect 274 of them to be on his sick list dur-

ing the course of a year—that they would experience 2430 weeks' sickness in the aggregate—and that there would be about sixteen deaths out of that number in the same time; and presuming that he were to visit each patient every alternate day, it would produce 8,505 visits in the course of a year, or about 23 visits daily. Societies and many other public bodies adopt a practice of paying an annual sum for medical attendance and advice; and it will thus be seen that means are available by which to calculate the probable amount of labour and time that may be required for the discharge of such engagements.

It may at this place be again stated, that in applying the preceding results to individual classes, or in a few instances only, it should not be expected that they will in every case be confirmed. Nothing short of a refined classification is calculated to meet the peculiar aspect of all the cases presenting themselves. A review of Table XXII will shew the wide distinction which prevails between the ratio of sickness in the Rural, Town, and City Districts; and in particular trades or occupations the sickness sometimes is double in amount that in other employments. In sickness therefore, as well as in mortality, it is obvious that general results can be but of little practical value. Suppose it were attempted to conduct Societies in Liverpool, or any other large city in England, on the same terms that would be adequate for Societies in the Rural Districts of Kent and Essex—it is manifest that they could not be of long duration.

Here it may be also well to state, that if in any public inquiry it should be attempted to ascribe the increased amount of sickness in the Town Districts to the less healthy nature of the districts, or their peculiar local influence on health, the conclusion would certainly be fallacious. Precisely similar arguments to those made use of in reference to the mortality of those districts, will explain the differences in the ratio of sickness in the same places; and it is therefore to be inferred, that whatever sanitary regulations may be carried out for promoting the health of towns, the wide distinction between the rates of sickness and mortality in particular districts will still not disappear. The cause of that difference is beyond the reach of any sanitary measure; and unless a change were to take place in the character and machinery of the manufactures of a town, by which the workmen would be habituated to less restrained but more natural and complete physical exercises, no improvement in the state of health is to be looked for.

The evils, so far as relates to health, represented to exist by some writers to so frightful an extent, and to connect themselves with inferior sewerage, filthy streets, and ill-planned houses, are certainly overstated by them. The data brought forward have generally been of the most indefinite and insufficient nature; and when, in connection with this, the erroneous methods employed, and the promiscuous manner in which their figures are generally combined, are kept in view, it must seem surprising that the thinking and intelligent portion of the community should have given their opinions any credence, or believed their conclusions entitled to so much weight.

Perhaps no statistical facts are better established than the duration of life among the middle and upper classes of this country; and if the data brought forward in this paper be received as of sufficient

merit to represent the duration of life among the working classes, it will then appear clear that any important change to be hoped for in the value of life in the Town Districts, must be effected through other means than sanitary regulations.

Those persons purchasing Government Annuities, and having dealings with Assurance Companies, are certainly beyond the reach of any improvements to be introduced by local regulations; and if cleanliness of habit, comfort of dwellings, and fresh air, be of themselves powerful elements in raising the standard of life, their influence should be felt among that class of persons. But what are the actual results? The poor workmen inhabiting the miserable streets of our large towns, and inhaling their supposed noxious vapours, are actually longer lived than the affluent and upper classes, whose easy circumstances enables them to inhabit comparatively the palaces of the kingdom.

It is evident, from the great disparity in the value of life among different classes of workmen, whose conditions as to whatever is within the scope of public sanitary measures are the same, that other elements must exist having a powerful influence on the duration of life. It would further appear, by viewing the various classes of society more in connexion with the physical exercises to which they are habituated than in connexion with their moral position and rank in society, and consequently with their sanitary condition, that a better clue will be found to the differences in the duration of life. It is not to be expected that any arrangements whatever as to the drainage and planning of streets are likely to add to the longevity of a tailor; but if it were possible to give his frame the physical exercises of a ploughman, twenty per cent. would be added to the duration of his life. Neither is it to be thought that the plumber, painter, and glazier, is to be relieved from the poison of the metallic emanations to which he is subject; nor that the clerk can inhale the fresh air, and indulge in those exercises necessary to develop his physical constitution, while he follows the drudgeries of the counting-house. It is an aggregation of these, and other employments similarly conditioned, which makes up the excessive mortality of our large towns; and since it has been shewn in the preceding pages that this class of lives is also less healthy even in the country districts, and that the town populations are chiefly made up of persons following such occupations, the legitimate result to be expected is a shorter duration of life in towns, independent of any local influence on health. If improvements and changes are to be effected in the sanitary regulations of our large towns and cities, let them at once be carried out,—not upon the necessity of such municipal innovations to avert a pestilential havoc in human life,—but on the true merits of the question, the comforts, conveniences, and elevation of taste and moral purity, thence arising.

TABLE No. 3.—(Continued from p. 215.)

Name of Railway.	Number of Return.	HORSES.			CARRIAGES.		
		Num-ber.	Average Dist.	Rate.	Num-ber.	Average Dist.	Rate.
				<i>d.</i>			<i>d.</i>
Birmingham and Derby Junction.	1	803	35.53	4.45	569	35.22	6.25
	2	790	35.12	4.41	514	36.61	4.94
	3	885	34.88	4.00	529	34.80	6.27
	4	727	34.00	3.75	308	33.30	6.12
Birmingham and Gloucester.	1	638	40.00	5.50	565	40.00	7.75
	2	558	40.12	5.125	342	39.51	7.75
	3	689	38.00	5.25	524	38.12	7.75
	4	742	44.00	4.5625	364	38.03	7.875
Bolton and Leigh.	1	2	9.75	4.15	10	9.75	6.51
	2	1	9.75	4.15	6	9.75	6.51
	3	8	9.75	4.15	....	....	....
	4	18	9.75	4.15	....	....	....
Chester and Birkenhead.	1	99	14.00	5.00	72	14.00	12.00
	2	183	14.40	5.00	41	14.44	12.00
	3	155	12.89	5.00	54	13.24	8.25
	4	226	14.40	5.00	46	14.90	8.25
Dundee and Arbroath.	1	....	....	....	21	16.76	5.875
	2	....	....	....	11	16.73	7.50
	3	....	....	....	20	15.60	....
	4	3	13.66	3.50	11	17.00	....
Eastern Counties.	1	403	16.60	4.79	215	12.15	6.19
	2	576	13.64	4.90	164	16.74	6.20
	3	487	16.01	4.95	245	18.27	5.67
	4	697	30.25	5.07	302	38.15	7.20
Grand Junction.	1	2,245	65.31	5.00	1,812	68.62	8.00
	2	2,263	65.86	5.00	1,063	69.34	8.00
	3	1,906	64.54	5.00	1,497	68.26	8.00
	4	1,810	63.11	5.00	903	67.54	8.00
Great North of England.	1	630	37.57	4.25	510	40.20	8.50
	2	869	34.71	3.75	298	40.11	8.25
	3	854	38.32	4.00	544	40.48	8.50
	4	1,027	34.72	4.00	304	39.94	9.00
Great Western.	1	3,802	66.04	4.50	3,695	68.17	6.00
	2	5,252	56.24	4.50	3,279	50.45	6.00
	3	4,488	64.56	4.50	3,824	60.71	6.00
	4	5,042	63.15	4.50	2,864	67.44	6.00
Hull and Selby.	1	269	23.52	3.50	63	28.85	7.80
	2	230	25.47	3.64	52	28.65	8.00
	3	432	20.59	3.81	92	29.76	7.87
	4	316	26.52	3.13	56	30.00	8.00
Lancaster and Preston.	1	324	20.00	4.80	444	20.00	10.50
	2	290	20.00	4.80	186	20.00	10.50
	3	275	20.00	4.80	391	20.00	10.50
	4	158	20.00	4.80	163	20.00	10.50
Leeds and Selby.	1	186	10.82	4.50	31	6.81	9.00
	2	225	7.96	4.50	26	6.41	9.00
	3	....	....	....	....	....	....
	4	....	....	....	....	....	....
Liverpool and Manchester	1	994	25.14	....	559	22.85	....
	2	670	23.69	....	216	22.05	....
	3	819	25.00	....	440	22.43	....
	4	702	24.25	....	217	22.12	....

TABLE No. 3.—(Continued.)

Name of Railway.	Number of Return	HORSES.			CARRIAGES.		
		Num-ber.	Average Dist.	Rate.	Num-ber.	Average Dist.	Rate.
				<i>d.</i>			<i>d.</i>
London and Birmingham.	1	4,694	82·39	4·999	3,653	81·86	7·820
	2	5,025	88·31	4·913	2,380	84·94	8·394
	3	4,767	56·57	5·112	2,732	70·79	8·245
	4	5,492	85·89	4·599	2,314	84·11	8·261
London and South-Western.	1	1,982	56·52	3·25	1,944	55·55	6·875
	2	2,054	54·02	3·25	1,484	53·53	6·875
	3	2,480	59·60	3·166	1,721	56·74	6·600
	4	2,474	33·65	3·166	1,505	56·58	6·600
Manchester and Birmingham.	1	....	....	....	....	....	....
	2	....	....	....	....	....	....
	3	245	25·11	....	148	26·27	....
	4	475	26·13	....	155	25·40	....
Manchester and Leeds.	1	563	44·46	3·4229	286	40·07	5·9225
	2	568	47·36	3·4760	147	37·09	5·9387
	3	509	45·19	3·5814	237	43·24	5·8573
	4	491	45·14	3·2625	142	38·80	5·9285
Midland Counties.	1	1,453	39·06	3·00	909	37·64	7·00
	2	2,292	40·95	3·00	748	36·86	7·00
	3	1,934	38·85	3·00	996	38·06	7·00
	4	1,219	38·76	3·00	391	39·05	7·00
Newcastle and Carlisle.	1	821	39·79	2·312	347	40·45	4·643
	2	616	39·14	....	237	41·54	....
	3	738	38·16	....	336	38·95	....
	4	531	37·84	....	205	40·40	....
North Midland.	1	1,820	57·54	4·25	1,172	54·97	7·50
	2	1,894	50·81	4·25	677	45·53	7·50
	3	2,353	54·66	4·25	1,133	67·21	7·50
	4	1,611	72·85	4·25	718	50·34	7·50
North Union.	1	378	22·00	....	428	22·00	....
	2	647	22·00	....	251	22·00	....
	3	443	21·77	....	517	21·85	....
	4	421	21·83	....	235	21·64	....
Northern and Eastern.	1	429	22·48	4·08	1,902	14·32	5·76
	2	974	15·62	3·97	3,647	18·21	5·67
	3	1,136	23·77	4·212	4,940	13·08	6·00
	4	1,144	23·89	4·212	5,215	9·98	6·00
Preston and Wyre.	1	67	18·12	5·50	67	17·88	10·25
	2	22	16·41	5·50	9	15·00	10·25
	3	37	11·60	....	40	16·50	....
	4	7	11·43	....	8	17·50	....
South Eastern.	1	....	....	....	....	....	....
	2	....	....	....	....	....	....
	3	621	37·46	4·50	697	46·22	4·92
	4	606	54·00	4·50	840	57·00	5·00
Stockton and Darlington.	1	27	13·78	....	22	13·59	....
	2	28	12·82	....	24	12·00	....
	3	59	12·44	....	32	12·12	....
	4	25	12·72	....	24	12·04	....
Whitby and Pickering.	1	....	....	....	22	24·00	10·50
	2	2	24·00	5·00	17	24·00	10·50
	3	5	24·00	5·00	37	24·00	10·50
	4	1	24·00	5·00	5	24·00	10·00
York and North Midland.	1	....	....	....	....	....	....
	2	....	....	....	....	....	....
	3	1,906	23·00	2·00	791	23·00	3·50
	4	1,846	21·04	2·00	392	20·50	5·00

TABLE No. 4.—*Coals.*

Name of Railway.	Number of Return.	Tons.	Average Distance.	Rate. <i>d.</i>	Name of Railway.	Number of Return.	Tons.	Average Distance.	Rate. <i>d.</i>
Bolton and Preston.	1	3,223	6.22	2.5	Newcastle and Carlisle, Home consumption.	1	7,594	5.36	2.25
	2	4,008	6.45	....		2	6,881	6.90	2.25
	3	5,610	6.24	2.5		3	5,081	9.03	2.25
	4	5,028	6.22	....		4	6,236	7.47	2.25
Dumfermline and Charlestown.	1	17,902	6.00	4.46	Ditto, Home consumption.	1	38,816	14.41	2.00
	2	12,167	6.00	4.46		2	29,121	14.79	2.00
	3	9,393	6.00	4.46		3	26,823	17.63	2.00
	4	13,285	6.00	4.46		4	23,480	25.08	2.00
Durham Junction.	1	....	....	....	Ditto, Home consumption.	1	12,925	14.65	1.75
	2	....	....	....		2	12,730	15.06	1.75
	3	16,931	3.78	1.03		3	12,652	12.87	1.75
	4	29,846	3.49	1.07		4	12,497	14.62	1.75
Durham and Sunderland.	1	221,474	12.00	1.25	Ditto, Export.	1	2,881	10.02	1.375
	2	166,231	12.00	1.25		2	5,127	11.09	1.375
	3	186,738	12.00	1.25		3	6,198	11.09	1.375
	4	141,541	12.00	1.25		4	7,284	10.98	1.375
Edinburgh and Dalketh.	1	63,587	5.45	2.00	Ditto, Export.	1	20,716	15.56	1.125
	2	67,567	5.68	2.00		2	20,800	16.76	1.125
	3	36,645	5.00	2.00		3	22,764	17.09	1.125
	4	53,542	5.66	2.00		4	16,321	15.92	1.125
Ditto, Leith Branch.	1	....	....	....	Newcastle and North Shields.	1	1,011	....	....
	2	15,839	....	....		2	7,213	....	....
	3	6,270	3.75	2.50		3	8,824	....	....
	4	9,028	3.75	2.50		4	11,760	....	....

Grand Junction.	A	1	10.54	0.75	30,769	17.38	1.259
		2	*22.23	0.75	....	....	....
		3	13.77	0.75	....	....	....
		4	13.37	0.75	41,392	....	....
Great North of England.	A	1	24.95	1.50	53,904	12.00	1.00
		2	25.89	1.50	64,217	12.20	1.00
		3	26.00	1.25	65,226	11.44	1.00
		4	27.14	1.25	80,058	12.00	1.00
Hartlepool.		1	....	0.625	....	....	....
		2	318.542	0.625	....	....	....
		3	369.385	0.625	321,539	14.77	1.25
		4	312.795	0.625	280,712	14.87	1.25
Liverpool and Manchester.		1	....	....	13,781	2.50	2.279
		2	47.304	....	17,173	2.50	2.05
		3	51.384	....	16,593	2.50	1.71
		4	45.574	....	13,243	2.50	2.00
Llanelli and Llandilo.		1	....	....	84,145	8.00	1.50
		2	10.917	2.13	74,375	8.00	1.50
		3	30.917	2.13	82,950	8.00	1.50
		4	31.221	2.13	108,874	8.00	1.50
London and Croydon.		1	24.858	2.13	3,441	6.07	2.00
		2	6.276	4.125	2,278	5.96	2.00
		3	2.112	4.000	1,233	5.60	2.00
		4	2.308	4.000	1,081	5.75	2.00
London and South Western.		1	1.258	4.000	....	....	....
		2	1.737	2.50	57,859	19.00	1.166
		3	1.460	2.50	....	....	....
		4	2.315	2.50	1,290	20.13	....
Manchester, Bolton, and Bury.		1	1.440	2.50	1,479	20.41	....
		2	24.195	2.50	1,148	18.07	....
		3	23.834	2.50	1,010	18.97	....
		4	26.237	2.469	....	....	....
Maryport and Carlisle.		1	26.872	2.50	....	....	....
		2	29.780	3.25	....	....	....
		3	6.21	3.40	....	....	....
		4	31.177	3.40	....	....	....
North Midland.		1	6.27	3.40	11,727	14.41	1.50
		2	32.614	3.40	10,586	17.13	1.25
		3	6.23	....	....	....	....
		4	5.81	....	....	....	....
North Midland.		1	....	0.75	....	....	....
		2	....	0.75	....	....	....
		3	....	0.75	....	....	....
		4	....	0.75	....	....	....
North Union.	A	1	24.95	1.50	53,904	12.00	1.00
		2	25.89	1.50	64,217	12.20	1.00
		3	26.00	1.25	65,226	11.44	1.00
		4	27.14	1.25	80,058	12.00	1.00
Pontop and South Shields.		1	....	0.625	....	....	....
		2	318.542	0.625	....	....	....
		3	369.385	0.625	321,539	14.77	1.25
		4	312.795	0.625	280,712	14.87	1.25
St. Helen's and Runcorn Gap.		1	....	....	13,781	2.50	2.279
		2	47.304	....	17,173	2.50	2.05
		3	51.384	....	16,593	2.50	1.71
		4	45.574	....	13,243	2.50	2.00
Ditto.		1	....	....	84,145	8.00	1.50
		2	10.917	2.13	74,375	8.00	1.50
		3	30.917	2.13	82,950	8.00	1.50
		4	31.221	2.13	108,874	8.00	1.50
Stockton and Darlington.		1	24.858	2.13	3,441	6.07	2.00
		2	6.276	4.125	2,278	5.96	2.00
		3	2.112	4.000	1,233	5.60	2.00
		4	2.308	4.000	1,081	5.75	2.00
Taff Vale.	A	1	1.258	4.000	....	....	....
		2	1.737	2.50	57,859	19.00	1.166
		3	1.460	2.50	....	....	....
		4	2.315	2.50	1,290	20.13	....
Whitby and Pickering.		1	1.440	2.50	1,479	20.41	....
		2	24.195	2.50	1,148	18.07	....
		3	23.834	2.50	1,010	18.97	....
		4	26.237	2.469	....	....	....
York and North Midland.		1	26.872	2.50	....	....	....
		2	29.780	3.25	....	....	....
		3	6.21	3.40	....	....	....
		4	31.177	3.40	....	....	....

TABLE No. 5—Cattle.

Name of Railway.	Number of Return.	Head.	Average Distance.	Rate.	Name of Railway.	Number of Return.	Head.	Average Distance.	Rate.
				<i>d.</i>					<i>d.</i>
Birmingham and Gloucester.	1	...	...	...	London and South Western.	1	749	49.80	2.75
	2	303	33.00	2.00		2	829	57.03	2.75
	3	82	33.00	3.19		3	1,040	66.31	2.33
	4	389	31.50	1.625		4	514	59.23	2.33
Eastern Counties.	1	323	13.20	1.63	Manchester and Leeds.	1	1,895	34.15	1.50
	2	1,010	14.20	1.53		2	1,995	29.51	1.50
	3	779	8.64	2.50		3	914	33.69	1.50
	4	927	29.59	1.85		4	1,237	24.50	1.50
Grand Junction.	1	370	...	2.0	Midland Counties.	1	9,579	23.61	1.25
	2	2,209	17.68	2.0		2	5,067	27.97	1.25
	3	4,580	37.50	2.0		3	4,422	30.96	1.25
	4	5,976	15.16	2.0		4	5,004	30.66	1.25
Great North of England.	1	3,890	41.26	1.33	Newcastle and Carlisle.	1	1,253	43.18	1.055
	2	2,830	39.60	1.25		2	1,779	40.85	0.81
	3	2,152	36.80	0.833		3	1,463	45.01	0.81
	4	6,035	37.44	0.777		4	2,007	44.54	0.875
Great Western. A.	1	1,645	...	3.067	Stockton and Darlington.	1	237	12.12	...
	2	6,817	45.24	1.525		2	237	13.32	...
	3	3,103	91.01	1.525		3	130	14.00	...
	4	5,727	52.17	1.525		4	300	12.65	...
London and Birmingham.	1	9,232	61.70	1.323	York and North Midland.	1	...	...	...
	2	5,956	55.35	1.378		2	...	...	...
	3	10,578	66.60	1.209		3	1,793	22.15	1.50
	4	10,166	73.50	1.161		4	4,826	21.41	1.50

TABLE No. 6—*Sheep.*

Name of Railway.	Number of Return.	Number.	Average Distance.	Rate.	Name of Railway.	Number of Return.	Number.	Average Distance.	Rate.
Birmingham and Gloucester.	1	870	27.60	d.	Leeds and Selby.	3	...	...	d.
	2	703	33.38	0.25		4	...	...	...
	3	479	30.40	0.50		1	65,097	91.68	0.145
	4	253	...	0.45		2	26,350	58.23	0.216
Branding Junction.	1	231	...	0.31	London and Birmingham.	3	64,304	60.73	0.213
	2	309	...	0.31		4	45,535	62.23	0.206
	3	164	...	0.31		1	13,494	42.24	0.25
	4	...	...	...		2	22,456	47.39	0.25
Chester and Birkenhead.	1	258	...	...	London and South Western.	3	8,324	47.31	0.25
	2	2,011	...	...		4	23,978	49.05	0.25
	3	766	...	...		1	15,765	28.76	...
	4	2,264	...	...		2	43,458	42.81	0.125
Eastern Counties.	1	1,265	15.91	0.30	Manchester and Leeds.	3	9,230	26.08	0.125
	2	1,661	14.50	0.30		4	20,862	29.61	0.125
	3	441	15.32	0.35		1	24,070	40.75	...
	4	10,374	45.53	0.23		2	13,769	39.31	...
Grand Junction. B.	1	659	82.71	...	Newcastle and Carlisle. ¹	3	24,276	40.97	...
	2	998	46.69	...		4	15,465	40.69	...
	3	467	56.07	...		1	...	...	...
	4	1,467	30.17	...		2	2,004	28.66	...
Great Western. A.	1	18,079	...	0.392	Northern and Eastern. A.	3	3,175	29.60	...
	2	57,891	44.25	0.392		4	8,576	30.60	0.25
	3	27,600	48.39	0.392		1	315	10.30	...
	4	91,041	44.03	0.392		2	155	12.10	...
Hull and Selby.	1	13,867	...	...	Stockton and Darlington.	3	169	12.50	...
	2	11,011	...	...		4	205	11.46	...
	3	45,446	...	...		1	...	...	...
	4	15,371	...	...		2	...	...	...
Leeds and Selby.	1	20,507	11.14	0.3	York and North Midland.	3	30,973	17.38	0.25
	2	17,632	10.58	0.3		4	73,430	14.02	0.25

TABLE No. 7—*Pigs.*

Name of Railway.	Number of Return.	Number.	Average Distance.	Rate.	Name of Railway.	Number of Return.	Number.	Average Distance.	Rate.
Birmingham and Gloucester.	1 2 3 4	1,380 1,999 1,681	20·00 19·14 25·12	<i>d.</i> 0·625 0·459 0·562	Great Western. A.	1 2 3 4	16,530 19,847 18,838 30,627	.... 49·45 48·11 47·51	<i>d.</i> 0·347 0·347 0·347
Bolton and Leigh.	1 2 3 4	255 615 435 1,050	10·00 10·00 10·00 10·00	.... .... .... ....	Liverpool and Manchester. B.	1 2 3 4	33,483 47,371 34,597 48,967	21·01 24·45 25·36 25·29	.... $\frac{1}{2}$
Branding Junction.	1 2 3 4	371 557 532 ....	.... .... .... ....	0·3125 0·3125 0·3125	London and Birmingham.	1 2 3 4	2,352 6,085 6,363 17,119	31·00 57·43 74·37 57·34	0·444 0·253 0·2263 0·2731
Chester and Birkenhead.	1 2 3 4	123 451 361 492	11·00 10·00 10·00 10·00	.... $\frac{1}{2}$	London and South Western.	1 2 3 4	446 254 292 306	23·61 23·57 27·87 28·43	0·5 0·5 0·5 0·5
Eastern Counties.	1 2 3 4	6,787 6,058 4,506 3,071	14·02 12·91 15·00 16·72	0·34 0·31 0·32 0·35	Manchester and Leeds.	1 2 3 4	14,237 18,297 13,802 15,635	37·55 41·36 33·08 28·15	.... 0·125 0·125 0·125
Grand Junction. B.	1 2 3 4	30,420 51,376 46,887 82,554	64·40 55·53 54·52 49·94	.... $\frac{1}{2}$	Newcastle and Carlisle.	1 2 3 4	1,126 1,977 2,403 1,824	46·81 49·78 46·66 50·94	0·173 0·153 0·1818 0·1666
Great North of England.	1 2 3 4	7,257 6,058 6,436 5,989	20·13 22·97 28·32 24·36	0·444 0·200 0·200 0·200	York and North Midland.	1 2 3 4	.... 2,766 4,152	.... 22·64 22·92	.... 0·50 0·25

NOTE.—The letter B in these Tables indicates an assumed rate.

On the Causes which determine the Choice of an Employment ; being an Addition to the Essays on the Influence of Employments upon Health.
By WILLIAM AUGUSTUS GUY, M.B. Cantab., &c. &c.

IN the course of a discussion which arose out of one of my former essays on the "Influence of Employments upon Health," as well as on one or two other occasions, it has been objected to one of the leading probabilities which I sought to establish, that parents who were conscious that their children were weak or ailing, would naturally make choice of occupations requiring little exertion, such as those of the clerk, tailor, or compositor; that these trades would in this way become filled with persons naturally unhealthy, and prone to the diseases unjustly ascribed to the occupation itself; and that this is the true explanation of the unhealthiness of such employments. Though I was not disposed to attach much importance to this objection, it appeared to me to be very desirable to submit it to the test of observation, by which alone the value of such opinions can be correctly ascertained. Accordingly I again availed myself of my position at the King's College Hospital, to collect the facts necessary for the solution of this question. After ascertaining from each patient, as usual, what his occupation was, I proceeded to question him as to the reasons which had influenced his parents or himself in the choice of it, taking care so to shape my inquiries as to avoid as much as possible leading questions. The results are embodied in the following table, in which I have adopted the simple division into sedentary employments, those carried on in-doors with a greater amount of exertion, and out-door employments.

Reasons assigned.	In-door.		Out-door.	Total.
	Sedentary.	Not Sedentary.		
Father in the trade	66	69	37	172
Brother or other relation in the trade	19	13	5	37
Father or other relation in a similar trade	3	18	3	24
Prevalent trade in place of birth .....	....	2	....	2
Friendship of employer.....	1	1	....	2
Began as errand boy	3	7	5	15
Apprenticed by parish	12	2	....	14
— without reason assigned	15	16	....	31
An opening	14	20	10	44
No reason assigned, except a taste for the business.....	53	63	11	127
Previously in army or navy	2	3	6	11
— a servant .....	....	2	7	9
— an agricultural labourer .....	....	....	1	1
Failed in business .....	....	....	1	1
Fond of reading	2*	....	....	2
Cripples.....	5	....	....	5
Want of strength	3	....	....	3
As being more healthy, but not on account of weakness .....	....	....	1	1
As being strong and suited to the business .....	....	1	....	1
Changed from a sedentary to an out-door employment, as being more healthy.....	....	....	1	1

* Compositors.

As will naturally be anticipated, there were a few cases in which mixed reasons were assigned for the choice of an employment. Thus, a man following the employment of a compositor stated that his father was in the same trade, but that being crippled in childhood and fond of reading, he felt that it was in every respect best suited to him. This man was one of the five entered in the table as cripples.

If we analyse the foregoing table, we shall see that it gives little force to the objection to which allusion has been made, for in more than one-third of the cases (172 in 503) the child follows the father's occupation, and in little less than half the cases (233 in 503) either the same trade, or a branch of the same trade in which the father or some near relative is already engaged. A simple preference seems to have decided a fourth of the men in the choice of their employment, and a very large proportion of the remainder have become what they are for reasons over which they could have exercised but little control. Out of the total number of 503, there are only 11 who were influenced in the choice of their employment by considerations connected with health or strength, and one of these embraced an out-door occupation on the general principle of its being more wholesome, and not because he was himself unfitted by weakness or infirmity for any but a sedentary employment. It would appear, then, that 49 out of 50 men embrace, or are made to follow, their employments from motives altogether unconnected with the state of their health; and that in only 1 case in 50 does the state of health exercise any influence on the selection.

The objection, therefore, to which a reference has been made, must be allowed to have a very slender foundation, and a very slight influence upon our conclusions, especially when it is considered that in these 10 cases 5 cripples are comprised, who as being cripples are not necessarily more subject to disease than those who enjoy the full use of their limbs.

But in destroying the force of one objection to the inference that the high mortality attending sedentary occupations is due to the nature of those occupations, and the unwholesome circumstances in which they are carried on, a new difficulty has been created, and a new objection of which it is perhaps impossible to measure the force or value, namely, that in more than one-third of the cases the child follows the employment of the father, and if the occupation be an unhealthy one is heir not merely to an unwholesome employment, but to the constitutional weakness or disease which that employment has entailed upon his parent. Here, then, a new inquiry opens to the view which is not quite so simple as its predecessor, and for which the materials are not so easily procured. It is one as full of interest as of difficulty, and highly important in its bearing on the subject of the influence of employments upon health.

There is one fact revealed by this short inquiry which is not unworthy of note. In some countries it is part of a system of despotic rule that the child should follow, as a matter of course, the employment of his father and ancestors, so that his trade is to the full as hereditary as his name. Now it is a curious illustration of the force of circumstances and necessity which in our own free country has taken the place of the despotic will of the ruler, and the uncontrolled

power of custom, that more than a third of our people should fall into the very position to which these irresistible causes would elsewhere consign them. It is true that the parallel does not hold in every respect, for it extends only from father to child; but I have met with several cases in which the successive generations, as far back as they could be traced, have belonged to the same trade; and this would happen much more frequently if the number of employments in this country were as small as in the nations among whom this hereditary law or custom obtains. It would not be an unprofitable employment to trace this parallel into all the parts of our complicated commercial and manufacturing system, and to show how vast an influence circumstances over which they have no control exercise over the destiny of our labouring classes; placing those who enjoy the great blessing of legal freedom in bonds almost as hard to break as those which bind the limbs of the slave.

Incendiarism.

THE Commitments for the Incendary Offences, now happily suppressed, which prevailed towards the end of 1843, and at the commencement of 1844, are chiefly included in the tables of the past year. The recurrence of this offence after a lapse of 13 years, the particular localities to which it was principally confined, and its atrocious character, give an interest to any particulars which throw light upon the condition of those charged with its commission; and have induced a separate calculation of their age, state of instruction, and sex.

	Numbers Committed.			Centesimal Proportion.
	Males.	Females.	Total.	
Aged under 10 years.....	6	0	6	2·4
„ 10 years and under 15 years	31	5	36	14·7
„ 15 „ 20	20	52	3	55
„ 20 „ 25 „	41	2	43	17·6
„ 25 „ 30 „	30	0	30	12·2
„ 30 „ 40 „	31	5	36	14·7
„ 40 and above	26	5	31	12·7
Ages not ascertained.....	7	1	8	3·3
Total.....	224	21	245	

The numbers falling under each degree of Instruction, and the proportion per cent., were as follows:—

Unable to read and write.....	68	27·8
Able to read and write imperfectly	142	58·0
Able to read and write well	25	10·2
Instruction superior to reading and writing well ...	2	0·8
Instruction could not be ascertained	8	3·2

In these calculations, the youth of the prisoners charged with such serious offences is chiefly remarkable; nearly 40 per cent., or more than one-third the proportion on the Commitments generally, being under 20 years of age. The degrees of Instruction do not present any particular difference. The proportion of females is very small, amounting only to 9·3 per cent.; on the Commitments generally, it is 23·1 per cent.—*From Criminal Tables for 1844.*

Education among Criminals.

WITHOUT entering into the same detail as has been done with regard to the ages, it will perhaps be sufficient to make the following general comparison of the state of Instruction in the great Mining and Manufacturing Districts, and in the Metropolis, with the total of the Agricultural Counties:—

Degrees of Instruction.	Mining and Manufacturing Districts.	Agricultural Counties.	Metropolitan County.
Unable to read and write	31·6	31·4	23·2
Able to read and write imperfectly	59·5	58·9	57·1
Able to read and write well	6·6	6·7	15·8
Instruction superior to reading and writing well	0·6	0·4	0·7
Instruction could not be ascertained	1·7	2·6	3·7

From these results it is shown that a very great uniformity exists in the state of elementary instruction in the manufacturing and agricultural districts—an uniformity which did not appear in the calculations of former years—which were arrived at by contrasting the ten counties having the largest proportional manufacturing, with the ten having the largest proportional agricultural population. In the Metropolis, the small proportion who have not received some instruction is remarkable, when the class is considered to which the calculation refers; and so is the great proportion who are “able to read and write well,” compared with the proportion in the other counties.—*From Criminal Tables for 1844.*

PROCEEDINGS OF THE STATISTICAL SOCIETY OF LONDON.

Eighth Ordinary Meeting, 1844-5. Monday, 16th June, 1845.

D. G. B. Mendelssohn, Professor of Statistics in the University of Bonn, was elected a Foreign Honorary Member.

The following gentlemen were admitted Fellows:—

Joseph Toynbee, Esq.	Major Wilkinson.
Thomas James Watson, Esq.	John Towne Danson, Esq.
Rev. F. C. Cooke.	Major-General William Monteith, K.L.S.

The following gentlemen were proposed for admission into the Society:—

Thomas Mullinder, Esq.	Henry Smith, Esq.
------------------------	-------------------

First Ordinary Meeting, 1845-6. Monday, 24th November, 1845.

The following gentlemen were elected:—

Thomas Mullinder, Esq.	Henry Smith, Esq.
------------------------	-------------------

The following gentlemen were proposed as candidates for admission into the Society:—

William Ogilby, Esq. M.A.	J. S. Goodfellow, M.D.
J. J. Sylvester, Esq.	Major Henry Berkley Henderson.
Richard Dugard Grainger, Esq.	Charles Grenville Mansell, Esq.
Henry Wildbore Rumsey, Esq.	

Comparative Tables of Degrees at Cambridge, in the Seventeenth and Nineteenth Centuries. By James Heywood, Esq., F.R.S. (Read before the Statistical Section of the British Association at Cambridge, 19th June, 1845).

TABLE I.

NUMBER OF DEGREES TAKEN AT CAMBRIDGE, FROM 1570 TO 1658.

[From MS. Harl. no. 7038.]

This Table will give a general idea of the fluctuations in the Numbers of the Degrees taken at the University during the greater portion of the period between Dr. Whitgift's Statutes and the restoration of the House of Stuart.

Date.	D.D.	Doctor of Civil Law.	B.D.	M.D.	M.A.	B.A.	B.L. or B.C.L.	Incorporated.	Bachelor of Medicine.	Doctor of Music.	Bachelor of Music.	Practical Medicine.	Practical Surgery.
1570	3	2	14	1	55	114	4	2	....	....	....	1	....
1571	....	1	....	....	71	113	....	2	....	....	....	1	....
1572	1	1	8	....	61	185	....	1	....	....	....	1	....
1573	....	2	8	1	63	120	7	....	....	....	....	2	1
1574	....	3	9	....	57	146	1	....	1	....	....	....	....
1575	6	2	13	....	104	130	....	3	....	....	....	4	....
1576	3	3	16	4	70	174	2	....	1	....	....	1	....
1577	....	....	18	5	93	162	....	....	....	....	....	....	2
1578	6	3	12	....	85	115	6	....	....	....	....	5	....
1579	2	6	15	2	106	153	6	1	....	....	....	1	....
1580	1	3	15	1	86	205	1	....	....	....	....	....	....
1581	4	6	8	5	61	194	4	....	....	....	....	2	....
1582	3	....	20	....	102	213	3	1	....	....	....	....	....
1583	9	....	14	3	129	277	3	1	....	....	....	....	....
1584	2	....	9	2	113	236	1	....	....	....	....	....	....
1585	3	2	13	1	113	192	....	1	....	....	....	1	....
1586	1	2	16	2	165	198	3	7	....	....	....	1	....
1587	5	1	16	2	135	180	....	3	....	....	....	4	....
1588	2	1	8	1	118	129	2	....	....	....	....	....	....
1589	7	3	18	....	110	182	3	....	....	....	....	2	....
1590	6	....	16	....	107	....	....	....	....	....	....	....	....
1591	1	....	23	....	81	....	....	....	....	....	....	....	....
1592	4	2	14	....	110	140	5	....	....	2	4	....	....
1593	....	....	27	....	97	....	....	....	....	....	....	....	....
1594	15	3	17	4	88	177	6	....	....	....	....	....	....
1595	2	5	26	5	108	164	2	....	....	....	....	....	....
1596	6	3	16	....	115	157	....	....	....	....	....	....	....
1597	8	....	17	....	125	210	....	....	....	....	1	....	....
1598	9	....	8	2	114	175	3	....	....	....	1	....	....
1599	2	....	24	2	90	167	....	....	....	....	....	4	....
1600	5	....	17	....	156	102	9	....	....	....	....	....	....
1601	7	....	14	1	115	182	2	....	....	....	1	....	....
1602	6	....	15	1	105	156	....	....	....	....	....	....	....
1603	5	....	21	1	94	154	1	....	....	....	....	2	....
1604	1	2	12	3	126	191	2	....	....	....	....	2	....
1605	5	1	17	....	119	180	4	....	....	....	1	2	....
1606	5	2	22	2	149	218	4	....	....	....	1	1	....
1607	9	....	26	2	154	160	....	....	....	....	....	4	1
1608	10	1	32	5	141	177	2	1	....	....	1	3	....
1609	16	....	32	1	161	275	1	....	....	....	....	3	....

TABLE I.—Continued.

Date.	D.D.	Doctor of Civil Law.	B.D.	M.D.	M.A.	B.A.	B.L. or B.C.L.	Incorporated.	Bachelor of Medicine.	Doctor of Music.	Bachelor of Music.	Practical Medicine.	Practical Surgery.
1610	6	...	26	...	117	120	6	...	...	...	2	4	...
1611	2	2	25	4	139	214	...	...	...	...	...	...	...
1612	8	1	13	...	161	204	3	...	...	...	...	...	1
1613	20	2	21	1	152	207	1	1	2	...	...	...	...
1614	6	1	17	5	156	192	4	...	...	...	2	...	...
1615	25	3	21	3	...	...	...	1	...	...	...	1	...
1616	7	1	19	1	166	230	2	2	...	1	1	2	...
1617	7	1	22	...	121	219	2	...	...	...	1	...	...
1618	10	1	15	1	209	273	2	...	...	...	...	...	...
1619	4	1	12	1	182	249	2	...	...	...	...	...	...
1620	9	3	19	1	176	293	1	1	...	...	...	2	...
1621	9	2	20	2	213	262	...	...	...	...	...	...	...
1622	11	...	18	...	201	235	2	...	...	...	...	2	...
1623	9	...	26	...	210	299	1	1	...	...	1	2	...
1624	...	...	19	1	199	331	3	1	...	...	...	1	...
1625	4	...	16	3	213	293	3	...	1	...	...	...	...
1626	7	...	19	2	221	305	1	...	1	...	1	...	...
1627	16	...	30	2	237	290	...	...	1	...	...	3	...
1628	11	2	26	4	216	351	4	...	...	...	...	4	...
1629	4	2	17	2	226	245	...	1	...	...	...	3	...
1630	27	4	13	5	198	302	...	...	...	...	...	...	...
1631	21	...	35	7	269	324	3	1	...	...	...	4	...
1632	2	1	22	2	207	280	1	1	2	...	...	5	...
1633	4	1	19	...	248	263	3	...	...	...	...	1	...
1634	4	1	20	3	225	196	6	...	1	...	...	2	...
1635	9	...	15	1	214	273	7	3	1	...	...	...	...
1636	13	3	22	4	189	249	...	...	1	...	...	...	...
1637	9	3	20	2	130	284	...	4	2	...	...	5	...
1638	5	3	19	2	252	219	3	...	5	...	...	5	...
1639	12	4	18	1	176	209	5	2	1	...	...	7	...
1640	4	2	18	4	182	264	2	3	...	...	1	5	...
1641	3	...	8	...	191	212	9	5	...	...	...	2	...
1642	3	...	7	4	166	...	3	2	4	...	...	1	...
1643	1	...	9	2	111	...	1	8	...	...	...	1	1
1644	1	...	2	1	72	...	...	3	...	...	...	1	...
1645	...	...	1	5	78	190	...	8	...	...	...	1	...
1646	1	2	7	6	121	143	...	2	...	...	...	6	...
1647	...	2	4	5	105	130	...	...	...	...	...	2	...
1648	2	1	7	1	92	171	...	...	...	...	...	4	...
1649	6	...	2	3	88	217	1	2	2	...	...	2	...
1650	4	...	5	3	65	221	1	1	...	...	...	2	...
1651	4	...	2	...	78	183	2	...	1	...	...	...	...
1652	...	2	1	4	91	167	3	...	5	...	...	...	...
1653	1	...	2	3	105	155	1	...	2	...	...	2	...
1654	1	...	3	1	123	183	1	...	6	...	...	3	...
1655	3	...	10	6	105	165	...	...	4	...	...	...	...
1656	2	...	4	5	81	149	1	...	1	...	...	2	...
1657	3	...	7	5	101	193	...	...	4	...	...	2	...
1658	1	...	4	4	126	190	2	...	6	...	1	...	...

TABLE II.

NUMBER OF DEGREES TAKEN AT CAMBRIDGE, FROM 1830 TO 1840.

[From the Grace Book of the Senate.]

Date.	Nob. and Tanquam Nob.	Degrees by Royal Mandate.	D.D.	Doctor of Civil Law, or LL.D.	B.D.	M.D.	M.A.	B.A.	B.C.L.	B.A. &c. Incorporated.	M.B.	Bachelor of Music.	Licensed Practitioners.
1830	5	2	2	....	14	7	190	324	16	1	5	....	2
1831	11	1	7	1	13	5	194	327	9	....	18	....	4
1832	6	....	2	....	10	3	180	318	12	....	....	....	3
1833	17	....	2	1	15	3	201	302	13	....	9	1	3
1834	8	....	3	1	18	3	185	305	9	....	8	....	3
1835	36	4	1	3	9	4	214	314	7	2	8	....	8
1836	7	3	5	....	16	6	194	295	15	2	4	1	11
1837	7	2	3	....	10	4	180	303	5	1	4	....	2
1838	8	2	3	....	12	2	181	315	6	1	2	....	4
1839	6	3	14	2	9	6	205	338	7	1	5	....	1
1840	8	5	5	1	3	3	213	339	8	....	3	....	1

TABLE III.

MATRICULATIONS AND THE FIRST DEGREES, AT CAMBRIDGE,
INCLUDING NOBLEMEN'S DEGREES, FROM 1820 TO 1839.

[From the Grace Book of the Senate.]

Date.	Matriculations.	Noblemen's Degrees.	B.A.	L.L.B.	M.B.
1820	413	10	183	12	6
1821	427	13	210	18	0
1822	397	7	284	11	6
1823	462	7	292	9	1
1824	447	11	299	16	16
1825	478	5	335	16	0
1826	426	9	283	14	7
1827	457	4	222	13	14
1828	461	4	335	10	2
1829	425	6	313	21	9
1830	453	5	324	16	5
1831	407	11	327	9	18
1832	440	6	318	12	0
1833	402	17	302	13	9
1834	447	8	305	9	8
1835	418	36	314	7	8
1836	430	7	295	15	4
1837	435	7	303	5	4
1838	409	8	315	6	2
1839	459	6	338	7	5
$\begin{array}{r} \frac{1}{20} \overline{) 8693} \\ 434 \end{array} \quad \frac{1}{20} \overline{) 188} \quad \frac{1}{20} \overline{) 5899} \quad \frac{1}{20} \overline{) 241} \quad \frac{1}{20} \overline{) 124}$					
$\begin{array}{r} 434 \quad 9 \quad 294 \quad 12 \quad 6 \end{array}$					

From this Table (III.) of the Matriculations and First Degrees at Cambridge, from 1820 to 1839, it follows, that the average number

of Matriculations in each year is 434, and the average number of the First Degrees, including noblemen's degrees, is 321, and hence nearly one-third of the Students matriculated leave the University without taking any degree at all. Some Students leave the University at the end of their first year, others in the second; and the number of places at table required in the hall of Trinity College is considerably less for the second year men, or third year men, than for the freshmen, showing that many Students have left after the first year.

TABLE IV.

OF THE PROPORTION OF STUDENTS INTENDED FOR LAY PURSUITS
AND FOR THE CHURCH, IN TRINITY COLLEGE, CAMBRIDGE.

Date.	Admissions into Trinity College.	Number of Testimonials for Deacon's Orders, given by the Tutors of Trinity College.
1831	159	41
1832	149	52
1833	145	47
1834	156	30
1835	145	38
1836	167	47
1837	125	38
1838	154	37
1839	124	40
1840	121	43
	11) 1445	11) 413
	131	37

Hence only one-third of the Students admitted into Trinity College, Cambridge, go into the Church; and two-thirds go into the law, into parliament, or into other lay pursuits.

CURRENCY RETURNS.

WE find that the new form of the Bank of England returns adopted in the first Number of the present Volume (for March, 1845), in accordance with the changes made by the 7th and 8th of Victoria, c. 32, requires some explanation to a portion of our readers, so as clearly to establish the connexion between this new series, and the tables in the old form. This can scarcely be done in fewer words, or more perspicuously, than by the *Economist* newspaper, of the 7th of December, 1844, which thus converts the first column of the table at p. 95 into the old form of return, under the several heads of *circulation*, *deposits*, *securities*, and *bullion*.

"First, *Circulation*.—In the account under the new form, which we are about to convert, the amount of notes issued to the Banking Department is 28,351,295*l*. From this we must first deduct the notes on hand, which would show the circulation to be 20,176,270*l*.; but as in the old form bank post bills were properly included in the circulation, we must add that item, 1,030,354*l*., which would thus

show a circulation of 21,206,624*l.*, as meant under the old form, thus—

	£.
Amount issued to the Banking Department	28,351,295
Deduct notes on hand.....	8,175,025
	<hr/>
Add Bank Post Bills in circulation	20,176,270
	1,030,354
	<hr/>
Actual circulation	21,206,624

“Second, *Deposits*.—Under this head the new form of the account only separates the public deposits from the others, which make jointly—

	£.
Public deposits	3,630,809
Other deposits.....	8,644,348
	<hr/>
Amount of deposits.....	12,275,157

“Third, *Securities*.—In the old form the shareholders’ capital was not included, nor the securities which the Bank held as representing it. The present account includes both, and we must therefore add together the whole of the securities presented in it, and deduct therefrom the amount of the proprietors’ capital, to arrive at the amount of securities held independent thereof. Thus—

	£.
Government Debt	11,015,100
Other Securities	2,984,900
	<hr/>
Deposited with the Department of Issue	14,000,000
Government Securities	14,554,834
Other Securities	7,835,616
	<hr/>
Total Securities	36,390,450
Deduct the part representing proprietors’ capital...	14,553,000
	<hr/>
Securities held against the circulation and deposits	21,837,450

“Fourth, *Bullion*.—The former accounts of the Bank included under this head all coin and bullion in its possession. To make a corresponding account we must add several items. Thus—

	£.
Gold in the Issue Department	12,657,208
Silver ditto	1,694,087
Gold and silver in the Banking Department.....	857,765
	<hr/>
Total bullion	15,209,060

“It will now be seen that we have disposed of the whole fourteen items presented in this new form of account, except one—the *rest*,—and that will be exhibited in constructing the account into the old form. Thus—

September 7th, 1844.			
LIABILITIES.	£.	ASSETS.	£.
Circulation	21,206,624	Securities	21,837,450
Deposits	12,275,157	Bullion	15,209,060
	<hr/>		<hr/>
Total.....	33,481,781	Total.....	37,046,510

“The balance between these *liabilities* and *assets* being 3,564,729*l.*, and constituting the item, *rest*, in the new form before us.”

Memoranda towards the Agricultural Statistics of Norfolk. By Sir John P. Boileau, Bart., F.R.S. (Read before the Statistical Section of the British Association at Cambridge, 21st June, 1845.)

THE following short statement of the results obtained by a committee of magistrates appointed to inquire into the Maintenance and Employment of the Agricultural Poor in the county of Norfolk in 1831, may be acceptable to the statistical section, and serve as a basis for comparison with the present time.

The substance is embodied in the report made by the committee through their chairman, Mr. Edmond Wodehouse, M.P. for the county, to the Quarter Sessions, in October, 1831.

The county of Norfolk contains 680 parishes. Returns were obtained from 426, the remaining 254 not being *compelled* to reply to the questions sent them by the committee declined answering; but as these agricultural parishes are of similar average extent to those which made returns, the 426 may be assumed as a fair evidence for calculation of the whole 680 of the county.

The total number of acres contained within these 426 parishes amounts to 664,867, of which 471,339 are arable.

The total number of Labourers usually employed thereon is 23,058, of which 18,277 may be called able-bodied labourers, *i. e.*, above 20 years of age, and 4,781 above 14 and under 20 years of age.

From hence it follows, in round numbers,

1. That the number of Labourers of all kinds, men and boys, employed upon 100 acres of *all kinds* is $3\frac{1}{2}$.

2. That the number of Labourers of all kinds, men and boys, employed upon 100 acres of *arable* is nearly 5.

3. That the number of Labourers, *above 20 years of age*, employed upon 100 acres of *all kinds* is $2\frac{3}{8}$, or about 1 to 36 acres.

4. That the number of Labourers, *above 20 years of age*, employed upon 100 acres of *arable* is $3\frac{5}{8}$, or about 1 to 26 acres.

And the conclusion to which the committee came, appears fairly borne out, notwithstanding a very contrary opinion previously prevalent, *viz.* :—

“As far as the committee are enabled to form a judgment, there does not appear to be, upon the whole, any material surplus of Labourers beyond what the cultivation of the soil may be fairly said to require. In many cases, undoubtedly, there is a most inconvenient number, either residing, or legally belonging, and in many of these the rates appear to be considerably increased by the claims of various tradesmen, such as bricklayers and carpenters during the winter months.”

I regret that I cannot obtain the special parochial returns from whence this report was made, and from which I have generally deduced the comparative amount of Labourers to the 100 acres. Many interesting facts might thus have been drawn out, but the papers appear to have perished.

JOHN P. BOILEAU.

20, Upper Brook-Street,
June 4, 1845.

STATE OF THE PUBLIC HEALTH IN THE LAST QUARTER.

"THE Quarterly Returns are obtained from 115 districts, sub-divided into 576 sub-districts. *Thirty-four* districts are placed under the metropolis, and the remaining 81 districts comprise, with some agricultural districts, the principal towns and cities of England. The population was 6,578,912 in 1841."

The public health, during the past quarter ending September 30th, was good; for the deaths, notwithstanding the increase of the population, were only 36,008, or 1870 less than the average of the corresponding quarters of five former years (1840—44). This favourable state of things was general, and was observed in the majority of the town districts of the kingdom. The southern coast has been unusually healthy through the summer; the deaths in Brighton, on an average 262, were only 219; in the Isle of Wight, the deaths, on an average 183, were 121; in the Portsea Island (Portsmouth), the deaths, on an average 299, were 239; in Exeter, the deaths, on an average 200, were 160; in Plymouth, the deaths, on an average 224, were 191; in Penzance, the deaths, on an average 292, were only 166; in the quarter ending September 30th, 1845.

The mortality has been below the average in every district round the south-eastern and southern coast, from London to the Land's End; yet the average mortality itself is low throughout that part of the country. In the last Report, (p. 4,) it will be seen that only 1.9 per cent., or 1 in 52, of the inhabitants die annually in the south-eastern and south-western divisions, while the annual mortality of the whole kingdom is 1 in 45.

In Austria, including the northern parts of Italy, the annual mortality is 1 in 33*; and the mortality throughout Italy is not less than in Austria. In the cities of Italy, the mortality, according to official documents, varies from 3 to 4 per cent. In France the annual mortality is 1 in 42.

The mortality was *above* the average of the corresponding quarter, in the following districts:—Northampton, Bedford, Yarmouth, Kidderminster, Leicester, Rochdale, Halifax, Bradford, Pontypool, Newtown, Holywell, and Anglesey.

Leicester is an unhealthy district; the average mortality is high; the average number of deaths in the summer quarter is 325, and in the last quarter no less than 457 deaths were registered. The Registrar of the East District remarks—"Since that time (1840) vaccination seems to have been totally neglected; hence the great increase of deaths for this and the preceding quarter. I have registered 73 DEATHS FROM NATURAL SMALL-POX, and only 4 persons that had been vaccinated, and those only very doubtful. *Measles* has been very fatal; I have registered 57 deaths from that epidemic."

The fatality of *Small-pox* is mentioned by the Registrars of Yarmouth, Northampton, Wolverhampton, Birmingham, Coventry, Basford, Liverpool, Bury, Prescott, and other districts, in their remarks.

METROPOLIS.—76 deaths from *Small-pox* were registered in the quarter: the average is 130. In the week ending September 13th, no death from *Small-pox* was registered. Such an exemption has never before been observed since the new Tables were published. *Measles* has been epidemic; 688 deaths have occurred from that disease. *Whooping-cough* has been prevalent. Of *Scarlatina* only 194 persons, chiefly children, died; the average is 476. Only 2 deaths from privation were returned; the average of the quarter is 5.

MORTALITY OF THE COUNTRY.

Quarterly Table of the Mortality in 115 of the Districts of England (including the principal Towns), shewing the Number of Deaths Registered in the Four Quarters of 1844, and in the Quarter ending September 30th, 1845. Also the Average Number of Deaths in the Five Quarters, ending September 30th, 1840-1844.

DISTRICTS.	Popula- tion 1841.	1840-44.		Deaths in the Summer Quarter ending Sept. 30, 1845.	DISTRICTS.	Popula- tion 1841.	1840-44.		Deaths in the Summer Quarter ending Sept. 30, 1845.
		Quarterly Average.*					Quarterly Average.*		
		Of Five Years.	Of Five Sept. Quarters				Of Five Years.	Of Five Sept. Quarters	
<i>Metropolis.†</i>					<i>North Midland Division.</i>				
West Districts...	301,326	1,758	1,644	1,559	Leicester	50,932	364	325	457
North Districts...	366,303	2,188	2,073	1,829	Lincoln	36,110	192	163	154
Central Districts	374,759	2,307	2,149	2,075	Nottingham...	53,080	367	388	285
East Districts...	393,247	2,596	2,499	2,637	Basford	59,634	322	263	272
South Districts...	479,469	3,099	2,713	2,742	Derby	35,015	228	208	181
Total	0,000,000	60,000	60,000	60,000	<i>North Western Division.</i>				
<i>South Eastern Division.</i>					Stockport	85,672	537	479	398
Maidstone	32,310	186	163	124	Macclesfield ..	56,018	374	310	355
Brighton	46,742	270	262	219	Great Brough- ton (including }	49,085	298	247	228
Isle of Wight ..	42,547	194	183	121	Chester	223,054	1,926	1,910	1,962
Portsea Island ..	53,036	312	299	239	Liverpool				
Winchester	23,044	121	114	89	West Derby (adjoining }	88,652	582	576	633
Windsor	20,502	96	85	77	Liverpool) ..				
<i>South Midland Division.</i>					Blackburn	75,091	478	400	382
St. Albans	17,051	82	76	85	Preston	77,189	525	458	458
Wycombe	34,150	192	163	141	Rochdale	60,577	391	321	363
Oxford	19,701	100	100	89	Bury	77,496	499	394	385
Northampton ..	28,103	172	158	182	Bolton	97,519	656	563	594
Bedford	31,767	182	150	182	Wigan	66,032	449	370	316
Cambridge	24,453	151	135	125	Prescott	43,739	250	195	211
<i>Eastern Division.</i>					Chorlton	93,736	616	608	607
Colchester	17,790	108	101	89	Manchester	192,408	1,531	1,529	1,366
Ipswich	25,254	142	141	119	Salford	70,228	495	489	438
Norwich	61,846	377	351	306	Ashton	173,964	1,133	970	896
Yarmouth	24,031	131	122	143	<i>York Division.</i>				
<i>South Western Division.</i>					Sheffield	85,076	556	498	445
Devizes	22,130	123	98	95	Huddersfield ..	107,140	549	460	471
Dorchester	23,380	114	103	98	Halifax	109,175	581	476	565
Exeter	31,333	207	200	160	Bradford	132,164	824	760	993
St. Thomas	47,105	216	199	148	Leeds & Hunslet†	168,667	1,096	1,037	944
Plymouth	36,527	227	224	191	Hull	41,130	297	298	273
Redruth	48,062	262	257	172	York	47,779	278	246	223
Penzance	50,100	271	292	166	<i>Northern Division.</i>				
Bath	69,232	432	384	336	Sunderland	56,226	339	335	292
<i>Western Division.</i>					Gateshead	38,747	239	228	165
Bristol	64,298	479	438	347	Tynemouth	55,625	313	299	292
Clifton	66,233	386	362	323	Newcastle-on- Tyne	71,850	465	453	423
Stroud	38,920	193	156	161	Carlisle	36,084	213	169	151
Cheltenham	40,221	224	210	138	Cockermouth ..	35,676	166	142	131
Hercford	33,646	198	178	171	Kendal	34,694	176	151	147
Shrewsbury	21,529	142	131	91	<i>Welsh Division.</i>				
Worcester	27,130	160	155	106	Abergavenny ..	50,834	319	286	254
Kidderminster ..	20,408	162	142	165	Pontypool	25,037	137	114	132
Dudley	86,028	528	472	457	Merthyr Tydvil	52,864	363	304	303
Walsall	34,274	205	182	158	Newtown	25,958	126	107	135
Wolverhampton ..	89,722	524	491	439	Wrexham	39,542	221	179	160
Wolstanton	32,669	211	182	164	Holywell	40,787	204	163	183
Birmingham	138,187	912	893	694	Anglesey	38,105	152	124	149
Aston	50,928	290	282	196	Total exclu- sive of the Metropolis }	0,000,000	00,000	00,000	00,000
Coventry	31,028	208	198	188	Grand Total ..	0,000,000	00,000	00,000	00,000

* The last quarter in the Metropolis ended September 27th, 1845.

† Wandsworth District is included in the return for the Metropolis.

‡ The former District of Leeds is now divided into the districts of *Leeds* and *Hunslet*, both included in the present return.

MORTALITY OF THE METROPOLIS.

A Table of the Mortality in the Metropolis, showing the Number of Deaths from all Causes, registered in the 13 Weeks, ending 27th September, 1845.

CAUSES OF DEATH.	Quarterly Average of Deaths in the Five Summer Quarters, 1839-43.	Deaths in the Summer Quarter, ending Sept. 27, 1845.	CAUSES OF DEATH.	Quarterly Average of Deaths in the Five Summer Quarters, 1839-43.	Deaths in the Summer Quarter ending Sept. 27, 1845.
ALL CAUSES.....	11,131	10,842	III. Cephalitis.....	156	159
SPECIFIED CAUSES	11,083	10,802	Hydrocephalus	475	421
I. Zymotic (or Epidemic, En- demic, and Contagious) Diseases.....	2,357	2,409	Apoplexy	197	266
SPORADIC DISEASES.			Paralysis	168	184
II. Dropsy, Cancer, and other Diseases of uncertain or variable Seat	1,312	1,111	Convulsions.....	781	608
III. Diseases of the Brain, Spinal Marrow, Nerves, and Senses	1,968	1,897	Tetanus	4	4
IV. Diseases of the Lungs and of the other Organs of Respiration.....	2,684	2,660	Chorea	4	4
V. Diseases of the Heart and Blood Vessels.....	235	371	Epilepsy.....	41	78
VI. Diseases of the Stomach, Liver, and other Organs of Digestion.....	1,085	1,090	Insanity	11	8
VII. Diseases of the Kidneys, &c.	63	101	Delirium Tremens.....	23	33
VIII. Childbirth, Diseases of the Uterus, &c.....	105	120	Diseases of Brain, &c.....	112	132
IX. Rheumatism, Diseases of the Bones, Joints, &c.....	65	71	Laryngitis.....	6	17
X. Diseases of the Skin, Cellu- lar Tissue, &c.....	15	27	Quinsey	21	5
XI. Old Age	686	569	Bronchitis	73	191
XII. Violence, Privation, and Intemperance.....	308	358	Pleurisy	15	28
			Pneumonia	656	600
I. Small Pox.....	130	76	Hydrothorax	41	46
Measles	404	688	Asthma	113	101
Scarlatina.....	476	194	Phthisis or Consumption ..	1,833	1,558
Hooping Cough	275	385	Disease of Lungs, &c.....	126	123
Croup	80	75	V. Pericarditis	8	12
Thrush	111	105	Aneurism	8	11
Diarrhoea	381	449	Disease of Heart, &c.....	218	348
Dysentery.....	59	43	VI. Teething.....	301	217
Cholera	54	26	Gastritis.....	353	18
Influenza	12	8	Enteritis		212
Ague	3	6	Peritonitis.....	14	31
Remittent Fever.....	6	8	Tabs Mesenterica.....	84	188
Typhus	352	273	Worms	6	10
Erysipelas.....	55	56	Ascites	11	19
Syphilis	9	17	Ulceration (of Intestines, &c.)	23	38
Hydrophobia	1	..	Hernia	17	18
II. Inflammation	79	..	Colic or Ileus	26	29
Hæmorrhage	37	29	Intussusception	9	14
Dropsy	377	227	Stricture	7	5
Abscess	41	19	Hæmatemesis	6	7
Noma	55	7	Disease of Stomach, &c.....	66	93
Mortification	5	34	Disease of Pancreas	4	..
Purpura	5	11	Hepatitis	17	33
Scrofula	30	32	Jaundice	29	29
Cancer	111	160	Disease of Liver, &c.....	113	135
Tumour	23	8	Disease of Spleen	3	3
Gout	10	11	Nephritis	4	4
Atrophy.....	124	233	Ischuria	2	..
Debility.....	258	221	Diabetes.....	4	13
Malformations	13	28	Cystitis	3	3
* Sudden Deaths	150	91	Stone	8	11
			Stricture	5	11
			Disease of Kidneys, &c.....	36	59
			VIII. Childbirth.....	71	70
			Paramenia.....	2	4
			Ovarian Dropsy	5	6
			Disease of Uterus, &c.....	27	40
			IX. Arthritis	4	1
			Rheumatism	30	31
			Disease of Joints, &c.....	35	39
			X. Carbuncle.....	1	3
			Phlegmon.....	4	5
			Ulcer	4	6
			Fistula	4	7
			Disease of Skin, &c.....	5	6
			XI. Old Age	686	569
			XII. Intemperance	11	14
			Privation	5	2
			Violent Deaths	292	342
			Causes not specified.....	47	37

* These were cases in which Inquests were held, and the cause of Death not ascertained.

REVENUE.

An Abstract of the Net Produce of the Revenue of Great Britain in the Years and Quarters ended 10th October, 1844 and 1845; showing the Increase or Decrease thereof.—(Continued from page 285.)

Sources of Revenue.	Years ended 10th October.			
	1844.	1845.	Increase.	Decrease.
	£	£	£	£
Customs.....	20,243,505	18,652,552	....	1,590,953
Excise	11,959,942	12,069,215	109,273	....
Stamps	6,533,385	6,961,370	427,985	....
Taxes	4,204,855	4,228,281	23,426	....
Property Tax	5,158,470	5,127,126	....	31,344
Post Office.....	672,000	688,000	16,000	....
Crown Lands.....	135,000	145,000	10,000	....
Miscellaneous	696,357	902,960	206,603	....
Total Ordinary Revenue	49,603,514	48,774,504	793,287	1,622,297
Imprest and other Monies .	181,515	406,619	225,104	....
Repayments of Advances....	956,593	1,325,760	369,167	....
Total Income.....	50,741,622	50,506,883	1,387,558	1,622,297
Deduct Increase.....				1,387,558
Decrease on the Year.....				234,739

Sources of Revenue.	Quarters ended 10th October.			
	1844.	1845.	Increase.	Decrease.
	£	£	£	£
Customs	6,002,855	4,848,363	....	1,154,492
Excise	3,960,890	3,955,106	....	5,784
Stamps	1,665,688	1,780,175	114,487	....
Taxes	201,439	201,279	....	160
Property Tax.....	1,958,711	1,823,883	....	134,828
Post Office.....	200,000	209,000	9,000	....
Crown Lands.....	10,000	30,000	20,000	....
Miscellaneous	220,961	465,102	244,141	....
Total Ordinary Revenue	14,220,544	13,312,908	387,628	1,295,264
Imprest and other Monies	28,117	24,591	....	3,526
Repayments of Advances	123,692	473,881	350,189	....
Total Income.....	14,372,353	13,811,380	737,817	1,298,790
Deduct Increase				737,817
Decrease on the Quarter				560,973

Consolidated Fund Operations.—The total income brought to this account in the quarter ended 10th October, 1845, was 13,821,674*l.*; the total charge upon it was 9,005,719; leaving a surplus of 4,815,955*l.* The amount of Exchequer Bills issued to meet the charge on the Consolidated Fund for the quarter ending 5th July, 1845, and paid off out of the growing produce of that fund for the quarter ending 10th October, 1845, after deducting 1,000,000*l.* paid off out of the Sinking Fund, was 1,254,432*l.* The probable amount of Exchequer Bills required to meet the charge on the Consolidated Fund in the quarter ended 10th October, 1845, is stated at 829,884*l.*

CORN.

Average Prices of Corn per Imperial Quarter in England and Wales, with the Rate of Duty on Foreign and Colonial Wheat, during each Week of the Third Quarter of 1845; together with the Average Prices for the whole Quarter.—(Continued from p. 286.)

Returns received at the Corn Office, 1845.	Wheat.		Barley.	Oats.	Rye.	Beans.	Peas.	Date of Certificates of preceding Prices, regulating Duties for the Week ensuing.	Duties on Wheat per Quarter.	
	Weekly Average	Aggregate Average of Six Weeks regulating Duty.	Weekly Average	Weekly Average	Weekly Average	Weekly Average	Weekly Average		From Foreign Countries.	From British Possessions out of Europe.
Weeks ending 1845.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.		s. d.	s. d.
July 5.	47 11	47 7	29 10	22 8	31 0	38 10	39 5	July 10	20 0	5 0
12.	48 10	48 1	29 0	22 6	33 11	39 8	38 11	17	20 0	5 0
19.	50 0	48 5	29 6	22 4	32 8	39 9	40 2	24	20 0	5 0
26.	51 7	49 0	29 2	22 5	31 7	40 3	38 10	31	20 0	5 0
August 2.	53 3	49 11	29 8	22 5	34 6	40 5	41 0	Aug. 7	20 0	5 0
9.	55 3	51 2	29 7	22 8	33 10	41 0	39 0	14	19 0	5 0
16.	57 0	52 8	29 4	22 2	34 4	41 2	39 7	21	18 0	5 0
23.	57 0	54 0	29 9	22 8	33 4	41 5	38 11	28	18 0	5 0
30.	56 6	55 1	30 0	22 4	35 7	42 1	38 4	Sept. 4	17 0	4 0
Sept. 6.	55 10	55 10	31 8	22 10	33 5	42 2	36 9	11	17 0	4 0
13.	54 1	55 11	31 0	22 3	33 2	42 10	36 5	18	17 0	4 0
20.	52 6	55 6	30 9	21 7	32 8	42 5	37 0	25	17 0	4 0
27.	53 2	54 10	30 2	22 2	33 1	42 5	38 9	Oct. 2	18 0	5 0
Average of the Quarter	53 3	..	29 11	22 4	33 3	41 1	38 8	..	..	..

Foreign and Colonial Wheat and Wheat-Flour imported in each of the Months ending 5th July, 5th August, and 5th September, 1845; the Quantities upon which Duties have been paid for Home Consumption during the same Months; and the Quantities remaining in Bond at the close of them.—(Continued from p. 286.)

WHEAT.

Months ending.	Imported.			Paid Duty.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1845	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.	qrs. bbls.
5th July	63,120 3	7,089 5	70,210 0	1,103 3	7,065 6	8,169 1	365,532 7	116 4	365,649 3
5th Aug.	55,093 1	5,372 2	60,465 3	884 3	5,384 5	6,269 0	412,632 0	101 1	412,736 1
5th Sept.	44,848 2	3,706 1	48,554 3	1,675 7	3,700 3	5,376 2	444,977 0	105 6	445,082 6

WHEAT-FLOUR.

Months ending.	Imported.			Paid Duty.			In Bond at the Month's end.		
	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.	Foreign.	Colonial.	Total.
1845	cwts. qrs.	cwts. qrs.	cwts. qrs.	cwts. qrs.	cwts. qrs.	cwts. qrs.	cwts. qrs.	cwts. qrs.	cwt. qrs.
5th July	3,031 3	75,566 3	78,601 2	320 1	74,874 0	75,194 1	223,389 2	3,215 3	226,605 1
5th Aug.	642 0	95,190 0	95,832 0	80 1	95,693 2	95,774 0	221,914 2	2,717 2	224,632 1
5th Sept.	848 3	72,190 0	73,339 0	279 1	72,623 2	72,902 3	219,715 2	2,576 3	222,292 2

CURRENCY.

BANK OF ENGLAND.

An Account, pursuant to the Act of the 7th and 8th Victoria, c. 32, for the Weeks ended on Saturday, the 16th August, 13th September, and 11th October, 1845.—(Continued from p. 287.)

ISSUE DEPARTMENT.

	Weeks ending, 1845.		
	16th August.	13th September.	11th October.
	£	£	£
Notes issued	29,075,905	28,790,195	28,068,820
Government Debt	11,015,100	11,015,100	11,015,100
Other Securities	2,981,900	2,981,900	2,981,900
Gold Coin and Bullion	13,086,136	12,819,486	12,253,289
Silver Bullion	1,989,769	1,970,709	1,815,531
Total	29,075,905	28,790,195	28,068,820

BANKING DEPARTMENT.

Proprietors' Capital	14,553,000	14,553,000	14,553,000
Rest	3,348,596	3,611,164	3,140,006
Public Deposits	4,969,963	7,319,619	8,782,975
Other Deposits	8,973,401	8,316,750	8,474,856
Seven Day and other Bills	1,374,346	963,395	1,081,206
Total	33,219,306	34,764,528	36,032,043
Government Securities, including Dead Weight Annuities	13,411,844	13,348,643	13,348,643
Other Securities	11,679,359	12,391,188	15,133,966
Notes	7,494,205	8,430,700	7,037,600
Gold and Silver Coin	603,898	593,997	511,834
Total	33,219,306	34,764,528	36,032,043

COUNTRY BANKS.

Average Aggregate Amount of Promissory Notes of Country Banks, which have been in Circulation in the United Kingdom, distinguishing the several Banks, or Classes of Banks, by which issued in each part of the Kingdom, during the four weeks ended 16th August, 13th September, and 11th October, 1845.—(Continued from p. 287.)

Banks.	16th August, 1845.	13th September, 1845.	11th October, 1845.
England—Private Banks	4,428,859	4,355,485	4,557, 91
Joint Stock Banks	3,124,372	3,112,226	3,306,470
Scotland—Chartered, Private, and Joint Stock Banks	3,303,255	3,341,397	3,128,074
Ireland—Bank of Ireland	3,776,775	3,712,725	3,907,025
Private and Joint Stock Banks	2,582,384	2,547,130	2,926,265
Total	17,215,645	17,098,963	18,125,525

BANKRUPTCY.

An Analysis of the Bankruptcies in England and Wales, gazetted in each Month of the Quarter ended September 30, 1845; showing the Counties and Branches of Industry in which they have occurred.—(Continued from p. 288.)

COUNTIES.	July.	August.	September.	TRADES.	July.	August.	September.
Metropolis.....	22	19	12	<i>Agriculture and connected Trades.</i>			
Bedford .....	...	1	...	Farmers .....	...	2	...
Berks	1	...	1	Agricultural Implement } .....	...	...	...
Bucks	1	...	1	Makers, &c. ....	...	...	...
Cambridge .....	...	1	...	Corn Factors	2	2	...
Cheshire	2	...	3	Millers and Malsters .....	...	3	1
Cornwall .....	...	2	...	Hop Merchants .....	...	...	...
Cumberland .....	...	...	...	Brewers	1	...	1
Derby .....	...	...	...	Horse and Cattle Dealers, and }	1	1	...
Devon	2	...	2	Woolstaplers .....	...	...	...
Dorset .....	...	...	...	<i>Mining and connected Trades.</i>			
Durham.....	1	1	1	Mining Firms .....	...	...	...
Essex	2	1	...	Blasting Works .....	...	...	...
Gloucester .....	...	...	2	<i>Manufactures.</i>			
Hants	1	3	...	Woollen Manufacturers	1	3	1
Hereford .....	...	...	...	Cotton „ .....	...	2	1
Hertford	1	1	...	Linen „ .....	...	...	...
Huntingdon .....	...	...	...	Silk „ .....	...	...	...
Kent	3	1	1	Printers and Dyers	2	3	1
Lancashire.....	11	12	3	Lace Manufacturers .....	...	...	...
Leicester	1	...	...	Hosiery „	2	...	...
Lincoln	1	2	1	Hardware „	3	2	...
Middlesex (exclusive } of the Metropolis. }	2	12	2	Earthenware „ .....	...	...	1
Monmouth.....	...	...	...	Glass „	1	...	...
Norfolk	1	...	1	Paper „ .....	...	...	...
Northampton	1	1	...	Builders	2	3	2
Northumberland	4	1	1	Miscellaneous Manufacturers....	16	7	5
Nottingham .....	...	...	...	<i>Commerce.</i>			
Oxford	1	...	...	Bankers and Merchants	7	1	...
Rutland .....	...	...	...	Shipowners, Warehousemen, }	13	9	6
Salop .....	...	1	1	Brokers, and Wholesale } .....	...	...	...
Somerset (including } Bristol) }	6	2	1	Dealers generally .....	...	...	...
Stafford .....	...	2	1	<i>Retail and Handicraft Trades.</i>			
Suffolk	2	3	1	Bakers	1	1	...
Surrey (exclusive of } the Metropolis }	3	2	1	Butchers	2	2	...
Sussex	3	...	...	Corn and Hay Dealers .....	...	...	...
Warwick	4	2	...	Innkeepers and Victuallers	10	10	5
Westmoreland .....	...	...	...	Wine and Spirit Merchants	2	3	2
Wilts .....	...	1	...	Dealers in Grocery, Drugs, }	7	5	2
Worcester .....	...	1	...	and Spices .....	...	...	...
York (East Riding)	7	6	1	Makers of, and Dealers in, }	8	6	2
„ (North Riding) .....	...	...	1	Clothing .....	...	...	...
„ (West Riding)	2	...	...	Makers of, and Dealers in, } .....	...	...	...
Wales.....	2	1	2	Furniture .....	...	...	...
				Coach Builders .....	...	...	...
				Miscellaneous	6	15	10
Total	87	80	40	Total	87	80	40

INDEX TO VOL. VIII.

	Page		Page
ACCIDENTS brought to the Stockport Infirmary, and attended by the House Surgeon, in the Years 1833, 1834, and 1835, by Samuel Gaskell, Esq., formerly House Surgeon	277	Bank of England, Account of Notes, &c., Issued, the Circulation, Deposits, and Liabilities, for the Weeks ending 26th April, 24th May, 21st June, and 19th July, 1845	287
Accident Out-Patients relieved in the Manchester Royal Infirmary in each year, from 1839 to 1842	281	— Ditto, for the Weeks ending 16th August, 13th September, and 11th October, 1845	367
Agricultural Labourers, Hints for improving the Condition of, by the Rev. Theodore Dury, Rector of Westmill, Herts	273	Bankruptcies, Number gazetted in the several Months, in each County and Trade, October to December, 1844	96
Agricultural Statistics of Norfolk, Memoranda towards the, by Sir John P. Boileau, Bart., F.R.S.	360	— January to March, 1845	192
Auditors for 1844	86	— April to June, 1845	288
BALFOUR, Edward, Assistant-Surgeon, Madras Army, Statistical Data for forming Troops, and maintaining them in Health in different Climates and Localities	194	— July to September, 1845	348
Balfour, T. Graham, M.D., Assistant-Surgeon, Grenadier Guards, &c., Comparison of the Sickness, Mortality, and prevailing Diseases among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports	77	Bengal Presidency, Statistics of the Hospitals for the Insane under the, by Lt.-Col. W. H. Sykes, F.R.S.,	58
Banks, Country, Average Aggregate Amount of Promissory Notes of Country Banks which have been in Circulation in the United Kingdom, distinguishing the several Banks, or Classes of Banks, by which issued, in each part of the Kingdom, during the Weeks ending 12th October, 9th November, and 7th December, 1844	95	Boileau, Sir John P. Bart., F.R.S., Memoranda towards the Agricultural Statistics of Norfolk, by	360
— 4th January, 1st February, 1st March, and 29th March, 1845	191	British Association, Fourteenth Meeting of, at York; Proceedings of the Statistical Section	102
— 26th April, 24th May, 21st June, and 19th July, 1845	287	— Fifteenth Meeting of, at Cambridge; Proceedings of the Statistical Section	289
— 16th August, 13th September, and 11th October, 1845	367	CALCUTTA, Population and Mortality of, by Lt.-Col. Sykes, F.R.S.,	50
— of England, Account of Notes, &c., Issued, the Circulation, Deposits, and Liabilities, for the Weeks ending 7th September, 5th October, 2d November, 30th November, and 28th December, 1844	95	Cambridge, Comparative Table of Degrees in the 17th and 19th centuries, at, by James Heywood, Esq., F.R.S.	356, 357
— Ditto, for the Weeks ending 4th January, 1st February, 1st March, and 29th March, 1845	191	— Report of the Statistical Section of the British Association, Meeting at	289
		Consolidated Fund, Operations in the, Quarter ending 5th January, 1845	93
		— Ditto, 5th April, 1845	189
		— Ditto, 5th July, 1845	285
		— Ditto, 10th October, 1845	365
		Corn, <i>see</i> Wheat	
		Corn, Average Prices Weekly and Quarterly, for the Quarter ending—	
		28th December, 1844	94
		29th March, 1845	190
		28th June, 1845	286
		27th September, 1845	366
		Copperthwaite, William Charles, F.S.S., Borough Bailiff of Old and New Malton, on the Statistics of Old and New Malton	66

	Page		Page
Criminals, Education among	353	Guy, William Augustus, M.B., Cantab, &c., &c., on the Duration of Life among the Peerage and Baronetage of the United Kingdom	69
Criminal Statistics and Movement of the Bond Population of Norfolk Island, to December, 1843, by Captain Maconochie, R.N.	1	Guy, William Augustus, M.B., Cantab, &c., &c., on the Causes which Determine the Choice of an Employment; being an Addition to the Essays on the Influence of Employment upon Health	352
Currency, <i>see</i> Bank of England, &c.		HALLAM, Henry, Esq., F.R.S., Reply to Mr. Sarcom's Remarks on the Tables of Marriages in the Irish Census, Returns for 1841 Health, Public State of, in the Quarter ending—	214
Currency Returns.	358	December, 1844	87
DISEASES prevailing, &c. among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports, by T. Graham Balfour, M.D., Assistant-Surgeon, Grenadier Guards, &c.	77	March, 1845	182
Duration of Life among the Families of the Peerage and Baronetage of the United Kingdom, by W. A. Guy, M.B., Cantab, &c., &c.	69	June, 1845	281
Dury, The Rev. Theodore, Rector of Westmill, Herts. Hints for Improving the Condition of Agricultural Labourers	273	September, 1845	362
EDUCATION among Criminals		Heyward, James, Esq., F.R.S., Comparative Tables of Degrees at Cambridge, in the 17th and 19th Centuries	356, 357
Educational Institutions of the East India Company in India, Statistics of, by Lieut. Col. W. H. Sykes, F.R.S.	103	Hospitals for the Insane under the Bengal Presidency, Statistics of, by Lieut. Colonel W. H. Sykes, F.R.S.	58
— continued	236	INCENDIARISM	
Employment, on the Causes which Determine the Choice of an; being an Addition to the Essays on the Influence of Employment upon Health, by William Augustus Guy, M.B., Cantab, &c., &c.	352	Insane, Hospitals for, Statistics thereof under the Bengal Presidency, by Lieut. Colonel W. H. Sykes, F.R.S.	58
England and Wales, Average Prices of Corn in, weekly and quarterly for the Quarters ending—		LARCOM, Thomas A., Esq., Remarks on Tables of Marriages in the Irish Census, Returns for 1841	209
December 28th, 1844	94	Laycock, J. M.D., Physician to the York Dispensary, Sanatory Condition of the City of York, by	63
March 29th, 1845	190	MACONOCHE, Captain R.N., Criminal Statistics and Movement of the Bond Population of Norfolk Island to December, 1843, by	1
June 28th, 1845	286	Malton, Old and New, Statistics of, by W. C. Copperthwaite, F.R.S. Borough Bailiff of Malton	66
September 27th, 1845	366	Manchester Royal Infirmary. Table of Accident Out-patients relieved in each year from 1839 to 1842	281
FINANCIAL Economy of Savings' Banks, by J. W. Woollgar, Esq.	275	Marriage Tables, in the Irish Census Returns for 1841, Remarks on, by Thomas A. Larcom, Esq.	209
Fletcher, Joseph, Esq., Barrister-at-Law, &c., Historical and Statistical Account of the present System of Supplying the Metropolis with Water.	148	Meteorological Quarterly Table, ending—	
GASKELL, Samuel, Esq., formerly House Surgeon to the Stockport Infirmary, Tables of Accidents brought to the Institution, and attended by the House Surgeon in 1833, 1834, and 1835	277	28th December, 1844	92
Graham, W. A., Esq., Adaption of Official Returns of Railway Traffic to the general purposes of Statistical Inquiry	215 & 344		

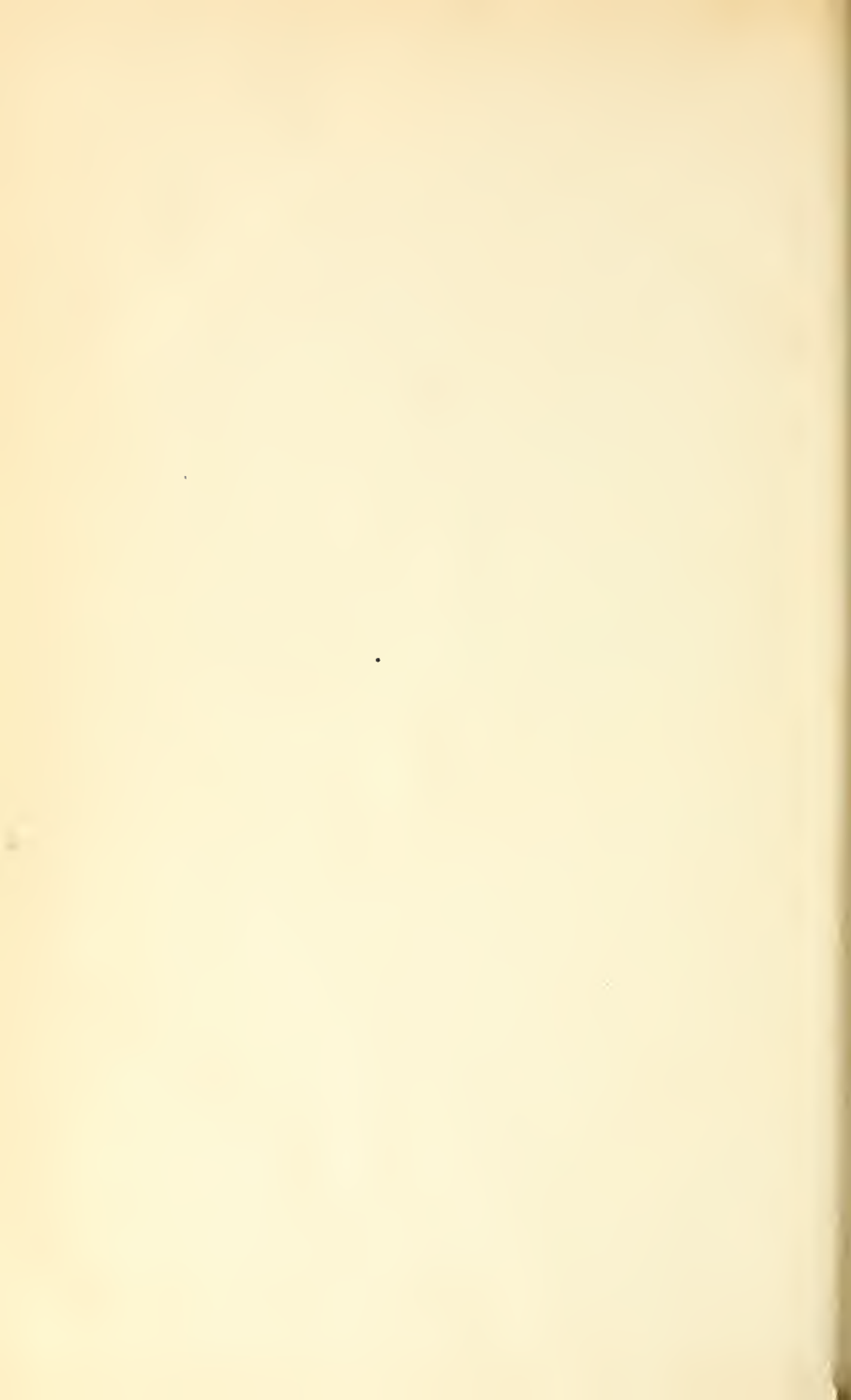
	Page		Page
Meteorological Quarterly Table— <i>continued</i>		Norfolk, Memoranda towards the Agricultural Statistics of, by Sir John P. Boileau, Bart. F.R.S.	
29th March, 1845	188	PEERAGE and Baronetage of the United Kingdom, Duration of Life among the, by W. A. Guy, M.B., Cantab, &c. &c.	69
28th June, 1845	284	Population and Mortality of Calcutta, by Lieut.-Colonel W. H. Sykes, F.R.S.	50
27th September, 1845	364	Provisions, Fuel, &c., prices of, in the Quarter ending Midsummer, 1844	90
Metropolis, Supply of Water to the, Historical and Statistical Account of the present System, by Joseph Fletcher, Esq., Barrister-at-Law, Hon. Sec.	148	— ditto, in the Quarter ending Michaelmas, 1844	186
Mortality, &c. of Calcutta, by Lieut. Colonel W. H. Sykes, F.R.S.	50	RAILWAY Traffic, Adaptation of the Official Returns of, to the general purposes of Statistical Inquiry, by W. A. Graham, Esq.	215, 344
— of the Metropolis, in the 13 weeks ending—		Revenue, Produce and Application, in Years and Quarters ending—	
28th December, 1844	89	5th January, 1844 and 1845	93
29th March, 1845	185	5th April, 1844 and 1845	189
28th June, 1845	283	5th July, 1844 and 1845	285
27th September, 1845	363	10th October, 1844 and 1845	365
— Quarterly Table of, in 115 of the Districts of England in the Five Years; the Average Number of Deaths in the Five Autumns, 1838—42; and the Number of Deaths in the Autumn Quarter of 1844, ending 31st December	88	SANATORY Condition of the City of York, by T. Laycock, M.D., Phy- sician to the York Dispensary	63
— Quarterly Table of, in 115 of the Districts of England in the five years; the Average Number of Deaths in the Five Winters, 1840—44; and the Number of Deaths in the Winter Quarter of 1844, ending 31st March, 1845	184	Savings' Banks, Financial Economy of, by J. W. Woolgar, Esq.	275
— Quarterly Table of, in 115 of the Districts of England, in the Five Years; the Average Number of Deaths in the Five Springs, 1840—44; and the number of Deaths in the Spring Quarter of 1845, ending 30th June	282	Sickness. Mortality and prevailing Diseases among Seamen and Sol- diers, as shown by the Naval and Military Statistical Reports, by T. Graham Balfour, M.D., Assis- tant-Surgeon, Grenadier Guards, &c.	77
— Quarterly Table of, in 115 of the Districts of England, in the Five Years; the Average Number of Deaths in the Five Summers, 1840—44; and the Number of Deaths in the Summer Quarter of 1845, ending 30th September	362	Statistics of the Educational Institu- tions of the East India Company in India, by Lieut.-Colonel Sykes, F.R.S.	103
NEISON, F. G. P., Esq. F.S.S., F.L.S., Contribution to Vital Sta- tistics, especially designed to eluci- date the Rate of Mortality, the Laws of Sickness, and the in- fluences of Trade and Locality on Health, derived from an extensive collection of Original Data, sup- plied by Friendly Societies, and giv- ing them too frequent instability, by	290	— continued	236
Norfolk Island, Criminal Statistics and Movement of the Bond Popu- lation of, to December, 1843, by Captain Maconochie, R.N., &c.	1	— of Old and New Malton, by W. C. Copperthwaite, F.S.S., Bo- rough Bailiff of Malton	66
		Statistical Society of London:—	
		— Eleventh Annual Report, 1844 1845	97
		— Second Ordinary Meeting of Session 1844—45, Dec., 1844	86
		— Third ditto, January, 1845	86
		— Fourth ditto, February, 1845	182
		— Fifth ditto, March 1845	182
		— Sixth ditto, April, 1845	182
		— Seventh ditto, May, 1845	182
		— Eighth ditto, June, 1845	
		— First ditto of Session, 1845—6, November, 1845	354

	Page		Page
Statistical Society of London.—Fellows Elected—		Sykes' Statistics of the Educational Institutions of the East India Company in India	103
Bright, John, Esq., M.P.	86	— continued	236
Blyth, James, Esq.	86		
Parish, Arthur, Esq., B.A.	86	TROOPS. Statistical Data for Forming and Maintaining them in Health, in different Climates and Localities, by Assistant-Surgeon Edward Balfour, Madras Army.	194
Briggs, Major-General	86		
Cobb, Timothy Rhodes, Esq.	86	VITAL STATISTICS, Contributions to, especially designed to elucidate the Rate of Mortality, the Laws of Sickness, and the Influences of Trade and Locality on Health, derived from an extensive Collection of Original Data, supplied by Friendly Societies, and proving their too frequent Instability, by F. G. P. Neison, Esq., F.S.S., F.L.S., &c.	290
O'Brien, Captain Donatus	86		
Griffith, R. P. Esq.	86	WATER, Supply of, to the Metropolis. Historical and Statistical Account of the present System, by Joseph Fletcher, Esq., Barrister-at-Law, Honorary Secretary	148
Gilbart, J. W., Esq.	182	Wheat, and Wheat Flour. Quantities Imported, paid Duty, and in Bond in the Months ending 10th October, 5th November and December, 1844	94
Stevenson, Thomas, Esq.	182	5th January, February, and March, 1845	190
Lister, William, Esq.	182	5th April, May, and June, 1845	286
Spry, Richard, Esq.	182	July, August, and September, 1845	366
Travers, J. Ingram, Esq.	182	Woollgar, J. W., Esq., on the Financial Economy of Savings' Banks	275
Jervis, Major T. B.	182		
Ellison, Michael, Esq.	182	YORK, the City of. Sanatory Condition thereof, by T. Laycock, M.D., Physician to the York Dispensary	63
Christie, W. D., Esq. M.P.	182		
Poole, Braithwaite, Esq.	182		
Toynbee, Joseph, Esq.	354		
Watson, Thomas James, Esq.	354		
Cooke, Rev. F. C.	354		
Wilkinson, Major	354		
Danson, John Towne, Esq.			
Monteith, Major-Gen. William, K.L.S.	354		
— Data for forming Troops and Maintaining them in Health in different Climates and Localities, by Assistant-Surgeon Edw. Balfour, Madras Army	194		
— Section of the British Association at Cambridge, Report of the	289		
Stockport Infirmary. Tables of Accidents brought thereto, and attended by the House Surgeon, in the Years 1833, 1834, and 1835, by Samuel Gaskell, Esq., formerly House Surgeon to the Institution	277		
Sykes, Lieut.-Colonel, F.R.S., &c., on the Population and Mortality of Calcutta	50		
— Statistics of the Hospitals for the Insane under the Bengal Presidency	58		









HA Royal Statistical Society,
1 London
R65 Journal. Series A (General)
v.8

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY
